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ENVIRONMENTAL QUALITY

No. 258

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3 July 1980

WORLDWIDE REPORT
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WORLDWIDE AFFAIRS

BRIEFS

PERTH SALINITY TALKS--The salt problem in WA's agricultural land and streams and rivers was formidable, the Minister for Water Resources, Mr Mensaros, said yesterday. He was announcing a special conference in Perth in November at which specialists from America, Israel and the Netherlands will join Australian experts to discuss the worldwide problem of salinity. Mr Mensaros said that the conference would be held on November 12 and 13 at Murdoch University. Eighteen papers would be presented. [Excerpt] [Perth THE WEST AUSTRALIAN in English 8 May 80 p 39]

CSO: 5000

AUSTRALIA

BRIEFS

OCEAN POLLUTION STUDY--Canberra: The Australian Academy of Science has suggested that encouragement be given to an Australia-wide and centrally coordinated programme to monitor marine pollution. The academy says pollution of the open ocean by oil slicks now appears to be increasing at an alarming rate. The possibility of pollution by radioactive wastes has been a worry for a long time, the academy says in a submission to the Senate standing committee on science and the environment. The submission said pollution involving heavy metals, plastics, oil and many other components was causing trouble in estuaries and coastal waters and arose from the discharge of raw or treated industrial and agricultural wastes, sewage and oil. The academy recommended that special attention be given to waste-disposal problems in relation to marine resource development. It also suggested increased support for what it called existing centres of excellence in universities and elsewhere working on basic mechanisms of the disposal, decomposition, or immobilisation of marine pollutants. [Excerpts] [Perth THE WEST AUSTRALIAN in English 14 May 80 p 26]

CSO: 5000

WATERLOGGING PROBLEM IN SIND

Karachi DAWN in English 14 Jun 80 p 7

[Editorial]

[Text] The problem of waterlogging has assumed extremely serious proportions in Sind, and the Provincial Government is understood to have prepared a detailed study of the menace for presentation to the President. The Governor of Sind told the concluding session of the Provincial Council the other day that an attempt will be made to highlight the dimensions of the problem, suggest remedial measures and present an estimate of the financial resources required. While waterlogging and salinity are threatening many fertile lands everywhere in the country, the problem has become acute in this province owing largely to the slow pace of reclamation. According to estimates, the province loses 40,000 acres of land every year whereas 60,000 acres are reclaimed. However, when the reclamation work was started in 1965 in the province, there was already a backlog of about four million acres of devastated land. Considering this huge backlog, the rate of reclamation fell short of the requirements, and the momentum of the land going waste and barren could not be broken till now. As of today, out of about 10 million acres of irrigated land in the province, six million acres have been devastated by the twin menace, thus affecting the agricultural production adversely and hampering the efforts to increase the output of food and cash crops. Had all the irrigated land been under cultivation, according to an estimate, Sind's agricultural production would have been three times more than at present. The problem of food self-sufficiency is, therefore, closely linked with the elimination of the twin menace in the country, including Sind.

While organised efforts are being made in the country for a long time to solve the problem of waterlogging and salinity, the desired results have not been obtained so far. In the province of Sind, the anti-waterlogging and anti-salinity programmes are, in fact, slowing down, mainly owing to the paucity of funds. Some of the schemes, like the Kotri Barrage Surface Drainage Scheme and the Left Bank Outfall Drain, have not made progress as originally planned. Both WAPDA and Sind's Irrigation Department, the two implementing agencies, have been complaining about the shortage of funds.

A specially organised drive against the twin menace, known as the Accelerated Programme, also could not be implemented according to the original time-table for the same reason. This programme according to its present rate of progress, cannot be completed by 1985, the target date. This delay will prove very costly as the relative size of the affected area would increase and the cost of the Accelerated Programme, originally estimated at Rs 1,400 million, would go up if its implementation goes well beyond 1985. It is to be hoped that an attempt will be made to tackle the issue of paucity of funds.

Efforts are also needed in the direction of finding cheap indigenous methods of checking the menace. Technical studies are needed for discovering cheap methods of building canals that do not allow seepage of water through their beds or minimise the rate of seepage. While foreign advice should be welcomed in this connection, only indigenous solutions allowing the use of cheap materials will prove effective in checking the spread of the scourge that is devouring fertile land at an alarming rate.

CSO: 5000

PEOPLE'S REPUBLIC OF CHINA

BEIJING DETERMINED TO IMPROVE ENVIRONMENTAL SANITATION

OW081432 Beijing Xinhua Domestic Service in Chinese 1438 CMT 7 Jun 80

[Summary] Beijing, 7 Jun--The fifth plenary session of the standing committee of the Beijing Municipal People's Congress which was held on 6 and 7 June called on cadres and the masses in the whole city to implement the four-point proposal made by the secretariat of the CCP Central Committee on work in Beijing, and to create a clean, healthful and refined environment in the capital.

"All the standing committee members of the Municipal People's Congress, the representatives of various departments in Beijing related to the patriotic public health campaign, environmental sanitation and environment protection and the responsible persons in charge of sanitation work in various districts and counties spoke one after another at the session, reaffirming the achievements scored in past patriotic public health campaigns. They believe that the capital is faced with many problems at present in environmental sanitation and environmental protection; that it is far from being able to meet the requirements put forward by the central authorities; and that this situation is incompatible with Beijing's status as the capital of the nation. Those attending the session adopted a 'resolution with regard to the thoroughgoing development of the patriotic public health campaign.'"

Those attending the session called for efforts to resolutely implement the "environment protection law of the People's Republic of China" and the "regulations on food sanitation and administration of the People's Republic of China." The "regulations to be implemented on a trial basis on urban public health administration" formulated by the Beijing Municipal Revolutionary Committee in November 1978 were proven good in general by our experience. We must continue to carry out these regulations on a trial basis and sum up our experience so as to further improve them.

"The session called on all districts and units throughout the municipality to set a day each week as 'sanitation day', conduct inspections once each month and develop activities to build more districts and units which are clean and sanitary and without mosquitoes and flies."

CSO: 5000

HEAVY FINES LEVIED AGAINST CULPRITS OF EXTENSIVE POLLUTION

Beijing RENMIN RIBAO in Chinese 29 May 80 p 3

[Article: "Applying Economic Sanctions Against Those Units Responsible for Heavy Pollution.

[Text] Recently, the concerned organs in the city of Shenyang have been applying economic sanctions against those units that have been wantonly discharging pollutants which endanger human health and cause significant losses to state and collective property.

On the basis of the charges brought by the injured units and people, the Shenyang People's Procuratorate and the Shenyang intermediate people's court cooperated with the Shenyang Environmental Protection Bureau to institute inspections to deal with the pollution situation. The Shenyang electroplating plant, the vehicle maintenance shops of the Shenyang First Transport Company, and the Shenyang Scientific Instruments Plant of the Chinese Academy of Sciences wantonly discharged industrial waste water containing chromium. This polluted the water resources of the waterworks, contaminating the water in two wells that supply potable water to residences in the southern part of the city. The water contained pollutants exceeding the safe drinking level and the wells were rendered unusable. According to the pertinent provisions in the Environmental Protection Law and the Shenyang environmental protection regulations, the above three organizations were fined 60,000 yuan to compensate the waterworks for its loss and were given until the first of October 1980 or sooner to clean up their act and conform to state regulations on dumping.

The covers on a great amount of chromium residue piled up by the Shenyang Petrochemical Plant had deteriorated and the resulting leadage caused extensive contamination of the wells and vegetable plots of the 4th and 5th production units of the Shenyang Brigade in the neighborhood of Dongling District. According to chemical tests run by the sanitation and antiepidemic organs, the two contaminated wells contained chromium in amounts that exceeded the state regulations setting standards for both potable water and irrigation water. The contaminated vegetables had such a high chromium content that they were rendered inedible. Through research and reports, the Shenyang Municipal Revolutionary Committee reached a decision: The 230 mu of garden plots that were contaminated could not be planted and the production units were to receive compensation for damage resulting from the pollution from the petrochemical plant. The plant's chromium residue was to be carefully managed and makeshift measures taken to repair the covers and walls before the first of June 1980. As for the discharge of harmful hydrogen chloride waste gas, production was to cease.

PEOPLE'S REPUBLIC OF CHINA

GUANGDONG BRINGS 'ENVIRONMENTAL PROTECTION PUBLICITY MONTH' TO SUCCESSFUL CLOSE

Guangzhou NANFANG RIBAO in Chinese 14 May 80 p 1

[Article: "Guangdong Winds Up 'Environmental Protection Publicity Month'"]

[Text] "Environmental Protection Publicity Month," recently launched in Guangdong, is now over. During this movement, much local environmental protection work got underway.

The Guangzhou Environmental Protection Office organized work teams to carry out inspections for smoke and dust elimination on more than 300 chimneys in the city. The Guangzhou Revolutionary Committee, in the interest of environmental protection work, issued awards and medals to the boiler and furnace smoke and dust elimination teams (squads) of 3,518 [sic] factories, 11 plastics plants, the Guangzhou Solvents Plant and 18 other units, and 24 advanced individuals. In addition, it commended the Guangzhou Agricultural Machinery Company, the Yan'an Chemical Plant, and 58 other units. The Panyu County Industrial Bureau convened a meeting of 14 factories and units to establish deadlines for carrying out the "three wastes" and to agree on how to do it. The Chaozhou Environmental Protection Office, in early April, took more than 20 cadres from the city's bureaus (departments) responsible for second light industry, electronics, electrical machinery, ceramics, etc., and formed inspection teams to conduct checks on the management of the "three wastes" in some 33 factories in the high-density residential areas and along the Han River. They also uncovered problems, commended advanced elements, and exchanged experiences, thus accelerating the development of environmental protection work throughout the city.

CSO: 5000

PEOPLE'S REPUBLIC OF CHINA

BENEFITS OF SEWAGE IRRIGATION DISCUSSED

Beijing GUANGMING RIBAO in Chinese 26 Mar 80 p 3

[Article by Cao Hungfa [2580 3163 3127] of the Chinese Environmental Science Society: "Should Sewage Irrigation Be Developed?"]

[Text] At present, the suburbs of our country's large and medium-size cities are basically carrying out sewage irrigation. The area of farmland irrigated by sewage in the entire nation exceeds 4 million mu and is expanding every year. However, what is the relationship between sewage irrigation and the environment? Is sewage irrigation acceptable or unacceptable? There have been different evaluations. Two kinds of views can be summarized. One view regards sewage irrigation as a relocation of pollution. As a result of sewage irrigation, the environment of an area becomes polluted; farmland is damaged; the quality of farm byproducts, underground water, and rural environment declines; and the incidence of disease among the masses increases. Thus, irrigation of fields with sewage "increases production in the short run but will be a calamity in the long run." The opposing view regards sewage irrigation as a measure to purify sewage. It can enhance the reutilization ratio of the resources of liquid fertilizer, solve the problem of water shortages in agricultural production, and can also utilize the natural purifying capability of farmland to eliminate pollution and avoid sewage pollution of rivers, lakes, and seas. Therefore, "rather than calling sewage waste material, it is better to call it an untapped resource." The author tends toward the latter view.

Sewage irrigation generally refers to the use of treated domestic sewage, industrial sewage, or a mixture of both, to irrigate farmland, herbage, forests, and fallow land. Since sewage is water and contains fertilizer nutrient, it is an extremely valuable source of liquid fertilizer. It has been estimated that if existing sewage is used for irrigation after undergoing specified treatment, 80 percent of the water used by the cities and industries can be reutilized, solving about 10 to 13 percent of the problem of needed water in agriculture. This has great significance for many areas in our country, particularly the arid and semiarid northern region, where the lack of water resources can be remedied. To a certain degree, sewage irrigation can also solve the contradiction of fertilizer deficiency.

Normally, 1,000 metric tons of sewage contains 48 to 80 kilograms of nitrogenous fertilizer, 7 to 15 kilograms of phosphate fertilizer, and 18 to 30 kilograms of potash fertilizer. Some sewage contains trace elements such as calcium, magnesium, iron, manganese, copper, zinc, molybdenum, and rich organic substances. The use of sewage in agricultural production with suitable amounts of irrigation, appropriate methods, and rational measures not only can satisfy the needs of crops for water and fertilizer but can also improve soil quality, raise the fertility of the soil, and greatly increase agricultural output. Compared to clear water irrigation in some areas, sewage irrigation generally increases agricultural output by 15 to 30 percent.

At the same time, rational sewage irrigation can purify the water quality of sewage and protect the environment. The soil of farmlands has large numbers of micro-organisms and small animals which have a decomposing effect on organic pollutants and prevent their high accumulation in the soil. The soil itself is formed by all kinds of small particles with an enormous surface area and a very high absorption. It can absorb pollutants on the surface of the particles, slowly and naturally breaking them down rather than rapidly dissolving a lot of them in the soil solution, so that crops and fruit trees will not absorb and accumulate them. Crops also have a certain purifying effect on some organic substances in sewage. In short, sewage irrigation provides natural and inexpensive physiochemical and biochemical facilities for sedimentation, filtration, aeration, and decomposition.

Scientific research has shown that sewage irrigation can remove 90 to 95 percent biochemical oxygen demand and chemical oxygen consumption, 89 to 95 percent suspended substances, 85 percent nitrogen, 98 percent phosphorus, 95 to 98.4 percent benzene compounds and 97 percent oil. Even for the stable 3,4-benzopyrene-derivatized polycyclic aromatic hydrocarbon, some reports say that over 70 percent can be removed. Because of this kind of self-purifying effect of farmland, it can accommodate specific quantities of pollutants without causing pollution.

PEOPLE'S REPUBLIC OF CHINA

BRIEFS

TIANJIN ENVIRONMENTAL CONFERENCE--A few days ago, the city's environmental protection office and the Environmental Science Society called a work conference to popularize environmental sciences in order to coordinate with the activities of national environmental protection propaganda month and to quicken the pace of our city's work in dealing with environmental pollution. The conference conveyed the spirit of the nation's first work conference called to popularize environmental sciences. It presented the status of our city's environmental pollution and provided the city's views on developing propaganda work to popularize environmental sciences. The conference regarded our city's environmental pollution conditions as becoming increasingly serious in recent years, reaching the stage of necessary action. Among the cadres and masses, some still understand little about environmental sciences. They pay attention to developing production but ignore protection of the environment. Their concern is only for the economics of their units but not for the long-range economics of the society. Some even treat economic development as incompatible with environmental protection. It is necessary to strengthen propaganda and education in order to correct their knowledge. The comrades at the conference all felt that there is great significance in positively coordinating the activities of national environmental protection propaganda month in March, energetically publicizing the Environmental Protection Law passed and issued by the Standing Committee of the NPC, and popularizing knowledge in environmental sciences. The removal of environmental pollution will not be a difficult task if the people's knowledge is increased, if they obey the Environmental Protection Law through self-awareness, and if they earnestly study environmental sciences. The movie "Smoggy Tianjin" produced by the Tianjin Scientific and Educational Film Studio was shown at the conference. [Text] [Tianjin TIANJIN RIBAO in Chinese 10 Mar 80 p 1] 9586

KUNMING URBAN PLANNING CONFERENCE--On 28 May, the Kunming Municipal CCP and Revolutionary Committees held a conference on urban planning in Kunming with participation of leaders from various units. Li Yuan, responsible person of the Kunming Municipal CCP Committee, discussed the opinions and demands of urban planning in Kunming. Liu Minghui, Yunnan Provincial governor, and Xu Qixiao, responsible person of the Kunming PLA units, spoke. The participants revealed that comparatively greater achievements have been scored in urban planning in Kunming in the past 30 years. They pointed out that the city left behind by the old society has now been turned into a productive city with a definite foundation. However, it is very important to properly rectify, build and manage Kunming Municipality. It is necessary to strive to build Kunming into a socialist city with modern industry and scenic spots for developing tourism, speed up afforestation, do a good job of protecting the natural environment and strictly control environmental pollution and population growth. (HK310632 Kunming Yunnan Provincial Service in Mandarin 1100 GMT 29 May 80 HK)

CSO: 5000

KUWAIT

BRIEFS

GULF ANTI-POLLUTION MEASURES--Kuwaiti port authorities have been given the powers to detain and even confiscate ships suspected of causing pollution in the country's territorial waters, according to a report in the Kuwaiti press last week. Earlier, Kuwait banned fishing for shrimp between April and June of this year in order to protect stocks. The Kuwaiti press report indicated that similar action against ships suspected of polluting Gulf waters would be taken by other states in the region. Five Gulf states sent officials to Kuwait for a meeting there on May 28 to discuss measures to protect Gulf waters from pollution and recommendations for new anti-pollution laws drawn up by a seven-man team of experts provided by the UN Development Programme (UNDP). The team spent three months in the region to study the possibility of implementing resolutions passed at a conference on protection of the marine environment held in Kuwait last October. The states represented at the May 28 meeting were Qatar, the UAE, Oman and Iran as well as the host nation. [Text] [Paris AL-NAHAR ARAB REPORT & MEMO in English 9 Jun 80 p 3]

CSO: 4820

DROUGHT EFFECT ON COFFEE EXAMINED

Bu'umbura LE RENOUVEAU in French 1-2 May 80 pp 1, 2

[Text] At the start of the 1980-81 coffee campaign, LE RENOUVEAU met with Edouard Niyongabo, General Director of Burundi's Industrial Crops Office (OCIBU). During the 7 May interview with reporters, the General Director of the OCIBU most often spoke about the preceding coffee campaign, crop and world exchange related problems.

[Question] What can you tell us about the 1979-80 coffee campaign, and do you feel that the season's harvest will begin soon?

[Answer] The preceding campaign was exceptional. It was a record year in production--number of tons--as well as in foreign exchange, since the world exchange market was very favorable for the sale of coffee (the world exchange rate fluctuates between 150 and 216 cents per pound).

In addition, both the volume and the return were good. By return, I mean the volume of coffee destined for trade of export purposes, less the dried coffee. This situation is due to the fact that the OCIBU personally took care of the 1978-80 campaign. Since 1974, the coffee harvest given to wholesalers has been relatively low. But since last year, we have succeeded in increasing this return.

As for an estimate of what we can expect from this year's harvest, it is still too early to tell, but we must keep in mind the weather factor; this is especially true of the draught which ravaged not only Burundi, but also all of eastern Africa: Kenya, Uganda, Ethiopia...themselves coffee producing countries. Since rain is such an essential and influential factor during the growing cycle--blossoming, first stage in the formation of the fruit, fructification, etc.--which runs from September to November, it is unfortunate that this was a dry period.

Remember also, however, that there has not been a very abundant amount of rainfall for the other alimentary crops either. Another factor to keep in mind is the lack of mulch in the Ngozi region, an indispensable element for healthy coffee trees, which need humidity for a good yield.

Currently we are trying to introduce plants with heavy leafage like the "flamengia", instead of mulch.

In addition, insecticide was not used as extensively as it should have been because of the movement of the farmers and the agricultural monitors at the time of the census.

[Question] How do you plan to organize the coffee campaign this year?

[Answer] Besides organizing the technical and mechanical preparations of the hunking centers and drying plants, the OCIBU will also be responsible for selecting the bearers who will receive credit for crop collection, keeping in mind their experience, resources, police record, state of affairs as far as the tax department is concerned, and their performance the previous season.

As for price-setting, we take many things into consideration, such as the world exchange rate, the prices of neighboring countries (CEPGL), and the social factor, i.e., the price necessary to pay the grower in order to encourage him to maintain coffee production. The Commerce and Interior ministers help us in this work.

Let me emphasize here that reimbursements from those allocated credit was almost 100 percent.

[Question] You took part in the latest International Coffee Organization's conference in London. What was discussed?

[Answer] This meeting usually takes place in London during the month of September, and this is where we go over all the problems encountered during the previous year's coffee campaign. Discussion topics include supply and demand, world production, stockpiling, and especially means of resolving these problems for both the producer and the consumer.

But the most important problem remains that of setting the coffee prices. This is the question that most occupies negotiations between producers and consumers when they confront the difficult task of setting the necessary prices: The bottom price (price below which a producing country will not be able to meet its expenses), and the levy-suspension price (price which protects the consumer).

Each coffee producing country is responsible for a certain quota on the world market. If, during these discussions in London, the base price is not reached, the producing countries are not held to using it. On the contrary, they have the right to furnish their quota as recognized by [legal] clauses...

In addition, the stabex system, drawn up at the Lome II convention, protects certain producing countries, of which Burundi is one. This is why there is no reason to worry about the fluctuation in coffee prices.

[Question] What advantages are there for a grower to sell the cherry coffee in husking centers in the Ngozi province?

Is there a project to extend these centers to other provinces?

[Answer] There are only advantages. The quality of the coffee is very good at these plants. The price on the world coffee market for coffee treated in these centers--constructed with the help of the World Bank of Kuwait--is 195 cents per pound, while the coffee produced in other places sells for 163 cents. The good quality reaps its benefits during sales.

There is also an advantage for the farmer who is paid the same price for dried coffee, while he saves himself from work he would otherwise have to do (husking, drying, transporting, etc.). If we had a lot of centers, we could conceivably be more competitive on the market.

As for the project to spread the use of this type of drying centers, we foresee constructing one at Muyinga and Kirundo, thanks to the help of the World Bank.

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CSO: 5000

ETHIOPIA

BRIEFS

RELIEF FOOD RUSHED--Assaita (ENA)--Relief aid amounting to over 4,000 quintals of grain and other nutritous food stuff were distributed by the government recently to drought affected people in Mille, Alidar and Awasa districts of Wollo region. Over 2,250,000 litres of water were also supplied to cattle in the same districts. Meanwhile, it was disclosed that drought is claiming a high toll of cattle in a locality called Bedet Bahri in Awassa province. It was noted that the locality is hit by an unprecedentedly severe drought and a drastic change of climate. The Assistant Administrator of Awassa, Comrade Ayalew Assefa, said that the waters of Awash have receded to such a low level that pasture in large expanses of land have disappeared. He said the toll of the cattle in the area is increasing considerably every day. Comrade Ayalew pointed out that the distribution of drinking water to people with only three water tankers has also failed to meet the existing demand and that the situation was seriously deteriorating. An urgent meeting of pertinent government and mass organization officials was held to discuss the prevailing situation and sort out means for emergency assistance. The committee decided on a number of measures and agreed to report to higher government authorities for additional steps considered beyond its means. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 4 Jun 80 p 1]

TREE PLANTING--Members of the youth association in Gardula district, Gamo Goffa region planted recently 16,700 tree seedlings of various types. [Excerpt] [Addis Ababa THE ETHIOPIAN HERALD in English 5 Jun 80 p 3]

CSO: 5000

EPC SEEMINGLY POWERLESS BEFORE MOUNTING DIFFICULTIES

Accra GHANAIAN TIMES in English 5 Jun 80 p 4

[Article by Tom Dorkenoo]

[Excerpts] Six years after the establishment of our own Environmental Protection Council, environmental problems stare us in the face. Rural and Urban sanitation have reached crisis level as garbage and human waste disposal problems have overwhelmed our local, district and city councils. In the name of development our forests and other "green zones" are being cleared by bulldozers for very ugly buildings the architects and builders call flats, offices and estate houses.

At this point, one would like to ask what successive governments did to correct this state of affairs?

The answer is just that, past governments have not taken our environmental problems seriously because it looks as if the EPC either do not know what environmental protection is all about or that the council knows but do not know or have no solutions to these problems.

An "insider" says the EPC is powerless before the rising problems because the council is filled with the wrong type of "experts".

In October last year, the Executive Chairman of Ghana's EPC talked to the 5th Regional Course in Health Administration and Management for senior Health Personnel drawn from Ghana, Nigeria, Sierra Leone, Liberia and The Gambia.

The following is a question and answer between some of the participants and the Executive Chairman:

Q1. From Liberia: Your lecture has placed a great deal of emphasis on the need for good sanitation. What is the EPC doing about sanitation?

A. As I mentioned earlier, we are not an executing agency. We have, however, worked closely with the Accra City Council, the Ministry of Local

Government and the Ministry of Works and Housing. We have offered advice and have furthermore identified some of the difficulties which prevent the City Council from performing its functions efficiently. First, it is clear that the administrative structure of Accra is NOT sound and that there is not enough decentralization of authority. Secondly, the City Council faces a serious problem of inadequate financing--the grant they get cannot be adequate and they do not seem to have the will to collect revenue in the form of taxes. Thirdly, they do not appear to have the necessary technological inputs, by way of equipment.

Comment: by Liberia on Answer: It appears to me then that your Council is not functioning. It offers advice, but the advice may be ignored. It must face much frustration as the problems remain.

A. I would agree with you if you said my Council is not succeeding in its efforts.

From Sierra Leone: Your emphasis in the lecture seems to be on the urban centres. What do you propose for the rural areas?

A. Fortunately the environmental problems of the rural areas have not reached the dimensions of those of the urban areas. The rural areas are able to cope somewhat with their rural environmental problems. However, W. H. O. has designed a system for the disposal of human waste in our rural areas. There are three houses in Kumasi fitted with this system and which are still under observation. Then of course there is the new fangled idea of Biogas. A seminar was held this year in China on Biogas. Our attempts to send someone to participate in the seminar were not successful.

"What is the EPC doing about sanitation? The EPC is not an executing agency". What advice has it offered the City Councils about sanitation and garbage disposal. Has the Council got a National Plan for garbage and human waste disposal, what is the best method for cleaning the Korle Lagoon or any other body of water in the country? There are human beings living around the environs of certain factories like that asbestos factory near the South Labadi Estates. There is a disease called ASBESTOSIS, known to all genuine environmentalists and doctors caused by asbestos dust. What advice has the EPC given the factory about the health hazards of that factory and others like it?

Wrong

The questions are many but the answers... The mountains of garbage in our cities, and villages, the smoke in the air, the noise, the heaps of human waste, the pollution of our beaches all point to the fact that THERE IS SOMETHING WRONG WITH THE EPC of Ghana.

The Government of the Third Republic owes a duty to this beautiful country by taking another look at our environmental pollution problems vis-a-vis the set-up and functions of the Ghana Environmental Pollution Council, for, we are heading towards another national disaster and the future looks bleak indeed.

CSO: 5000

SEVERE LAND DEGRADATION THREATENS ABILITY TO FEED NATION

Nairobi DAILY NATION in English 4 Jun 80 pp 13, 16

[Text]

KENYA's capacity to feed its booming population is being undermined by severe land degradation. If intensive soil conservation measures are not taken immediately, the entire economy will be seriously affected.

The situation is a result of population pressures, land overuse, improper cultivation of slopes, misuse of river and stream banks, forest and vegetation cover destruction, overgrazing and other related factors.

While some large-scale mechanised farmers have been treating land as an inexhaustible mine, poor peasants in many parts of the country survive on too small pieces of land which they eventually over-use and degrade.

Moreover, Kenya's population is highly concentrated in areas with high potential for agricultural production. Diminishing land *per capita* forces people to engage in intensive agricultural activities which lead to land degradation.

Kenya is obviously losing

ground. Over the last nine years, more than 41,000 hectares of gazetted forests have given way to human settlements. And more than 100,000 hectares of controlled forests have been converted to human settlements and national parks since 1963.

While landless people invade water catchment areas, soil conservation measures introduced in the colonial days have virtually been abandoned. As a result of land degradation, Kenyan rivers are overloaded with sediment and dams silted.

Flee

The effects go beyond that: soil erosion is reducing land productivity and more people are being forced to seek non-agricultural employment. Many of them flee to urban areas; they vote with their feet!

It was estimated in 1972 that nearly five million people would be forced to emigrate from western Kenya or look for non-agricultural employment by the year 2000 because of the area's incapacity to support them.

Recent estimates put the figure at more than six

million, considering that those who will need employment by the turn of the century are being born when the country's population growth rate is about four per cent. Kenya's labour force will grow by over 106 per cent between now and the year 2000.

On the other hand, soil erosion is making it more expensive to grow food as impoverished soil needs more fertilisers; which in turn makes food more expensive, especially for the urban poor. Inflation is usually fuelled by increasing population putting pressure on diminishing resources.

Soil erosion seriously affects crop yields and energy use. The depth of topsoil ranges from 18 to 24 centimetres. It has been estimated that for every 2.5 cm of topsoil lost, maize yields suffer a reduction of 250 kilos per hectare.

In the United States, for example, nearly 33 per cent of the topsoil from agricultural land has been lost and about 46 litres of fossil energy in the form of fertilisers and other inputs are used per hectare to maintain the productivity of the land. Kenya cannot afford such expenditure.

Vegetation cover destruction and soil erosion in Kenya are also reducing the land's capacity to retain moisture. This affects the energy input and the amount of land needed for crop production; fewer crop plants can be grown on land with reduced moisture. The yield is correspondingly less.

Land degradation affects livestock production. As soil fertility declines, the land's capacity to support forage diminishes, reducing the amount of food available for livestock. This is already happening in various parts of Kenya undergoing desertification.

Nearly all irrigation schemes in the country spend a lot of time, manpower and money to dredge silt from canals. By 1977 the National Irrigation Board had spent over Sh. 1 million to combat siltation in the Mwea scheme.

Fisheries are equally threatened with soil erosion. The deposit of sediment in Kenyan lakes raises the water level and destroys fish breeding areas. This is said to be one of the reasons for the marked decline of the Tilapia (*ngenge*) and other types of fish in Lake Victoria.

Residues

Sediment also interferes with the transmission of light in water. Because small water plants use light in the water to generate oxygen for fish, the reduction of light may affect the growth and distribution of fish in some lakes.

It has been noted that sediment reduces the growth of plants in water. This reduces the amount of food available for fish. Moreover, pesticide residues attached to soil particles are deposited

into lakes, causing pollution. DDT follows this channel to reach Lake Victoria and other lakes.

Fertiliser residues, detergents and other compounds which enter lakes through sediment transport contribute to the overgrowth of water weeds. This changes life in the affected lakes.

Kenya's marine resources, especially the coral reefs, have become victims of land degradation. Silt deposits from the Sabaki River are threatening the Malindi beach and the neighbouring coral reefs, which are a major tourist attraction and a reservoir of living resources.

Studies done in Kenya have shown that a tremendous amount of soil is lost yearly. An area of only 2,245 square kilometres around lower Sagana and Thika lose **nearly two million tonnes of soil annually — over 871 tonnes of soil per square kilometre a year**.

The Lake Victoria drainage area, which covers 8.4 per cent of Kenya's total area, loses about two million tonnes of soil yearly. The forest cover of the entire area has been reduced to only 43,000 hectares. A similar amount of soil is lost from the Athi drainage area which covers about 12 per cent of Kenya's total area.

Soil erosion is closely related to the production of electricity in Kenya. Over 5.6 million tonnes of silt are deposited in the Kamburu Dam yearly. At this rate, it is estimated that the dam will be completely filled up in less than 30 years.

Siltation is a serious challenge to existing and planned hydro-power installations in Kenya.

Hydro-power accounts for about 80 per cent of the country's electricity supplies and represents nearly 12 per cent of the total conventional energy consumed in Kenya.

Part of the siltation is caused by the cutting down of trees to meet charcoal and fuelwood needs. Of the 20 million tonnes of wood cut down for energy in Kenya, about seven million are converted to charcoal and utilised at an efficiency of nearly eight per cent. The rest are burnt as firewood at an efficiency of only three per cent.

Projects

The rate of replenishment is estimated to be about 50 per cent of the consumed amount. No effective and consistent reforestation projects have been undertaken, except for the 400 hectares of eucalyptus planted annually by the Government to meet future wood energy demands.

Kenya loses a lot of crops and resources due to floods resulting from high water runoff in areas that have lost forest and vegetation cover. Such floods cause acute food shortages — let alone destroying dams and property.

The effects of soil erosion on Kenya's economy lead to two choices: the country either has to undertake immediate soil conservation measures, or increase its use of fertilisers to compensate for the worsening land degradation. The latter is obviously unacceptable.

Since the country has abundant human resources, it is necessary to establish a labour-intensive approach to the question of soil conservation. The whole exercise will benefit the economy in the long run provided it is properly executed.

Experiments done in

Kenya and other countries have clearly shown that not only does soil conservation reduce soil loss, it also increases soil productivity. A soil conservation project in Jamaica resulted in a 200 per cent increase in van yield.

The introduction of terraces at intervals across hill-sides, the erection of channels across slopes to divert water to proper outlets and the building of special structures to reduce water flows and minimise soil loss are common methods used in many countries.

Most of the soil conservation methods used in other countries are known to Kenyans. What is lacking, however, is proper organisation of human resources and effective institutional frameworks to mobilise and utilise the available resources.

Problems may arise when the Government is forced to play a major soil conservation

role on land that is largely under private ownership. An example from pre-revolution Ethiopia illustrates the issue: poor peasants who were forced to plant trees on idle land that belonged to feudal lords planted the seedlings upside down!

But on the whole, Kenya

will find it difficult to succeed in soil conservation if the present population trends and development patterns continue.

Land degradation is the heavy price the country pays for inaction or pre-occupation with half-measures.

CSO: 5000

MINISTER WANTS SOIL CONSERVATION TAKEN MORE SERIOUSLY

Nairobi DAILY NATION in English 2 Jun 80 p 3

[Excerpt]

SOIL degradation and loss through erosion will have serious consequences in Kenya unless urgent steps are taken.

Environment and Natural Resources Minister Andrew Omanga sounded this warning yesterday as Kenyans joined the rest of the world in marking the World Environment Day.

Calling on Kenyans to take soil conservation more seriously, the Minister outlined the reasons for soil erosion in the country.

He said population pressure on the land had resulted in over-exploitation of a severely limited area of fertile topsoil.

Over 90 per cent of the population depended on charcoal and firewood and a growing number of industries were using wood as a source of energy. This was also a contributory factor, he said.

Mr. Omanga said 20 million tons of dry wood was used annually and warned: "The removal of vegetative cover from the soil makes it highly susceptible to erosion when the rain comes."

Overgrazing, particularly in semi-arid areas, had also been identified as a major cause of soil erosion, he said.

Apart from reducing productivity, soil erosion also silted up dams and lakes and thus posed a serious threat to hydro-electric power plants, particularly those within the Tana River Basin, he said.

CSO: 5000

COMPULSORY ENFORCEMENT OF SOIL CONSERVATION LAWS NEEDED

Nairobi DAILY NATION in English 5 Jun 80 p 6

[Editorial]

[Text]

KENYANS ought to get more involved in attending to environmental issues which have an impact on the future development of this country.

Dr. Mustapha Tolba, Executive Director of UNEP, in his statement on the World Environment 1980, emphasises issues like the release of carbon dioxide into the atmosphere, heavy metals pollution, transportation and arms expenditure as the most critical global environmental issues. Their impact on countries like Kenya ought to be evaluated since there is not much we can do in global terms as we do not have extensive industries, neither do we have an adequate transportation network. Our expenditure on the military, up to the recent past, has not been enormous. However, internally we have serious environmental challenges.

What is of immediate environmental concern in this country is soil conservation and afforestation. Soil erosion takes place because our agricultural practices do not ensure prevention of soil transport both by water and by air. Although the techniques for preventing this are known, there has to date not been public pressure on individuals to adopt these techniques as part and parcel of their crop and livestock farming. When there was such pressure, in the decade of the 1950s, many parts of this country were terraced and put under grass cover. Since then, however, the soil conservation terraces and ditches have been neglected. People felt that they were forced by the colonial government and should not continue after independence. Similarly in the last decade of colonial rule people were required to ensure that livestock did not exceed the available forage. Thus overgrazing was reduced

The basic failure in soil conservation has been in organisation. We do not advocate returning to the forced labour methods of the colonial era.

This would be counter-productive. However, since soil is a national resource, we advocate the limiting of individual choices when they use the resources badly. We would like to see a compulsory enforcement of the soil conservation laws and regulations in such a strict way that nobody is allowed to farm anywhere in the country without all the necessary conservation practices. Those who default should be heavily fined. Although this proposition sounds tough, the beneficiaries would be the farmers themselves. Soil conservation leads to higher land productivity. How the work is organised should be left to individuals and local communities. They should be aided with tools. Afforestation is the second urgent problem of the Kenyan environment. In these columns we have often written about the role of trees with regard to energy. Today we want to emphasise their role in conservation. Land without cover erodes faster. It is therefore important that discussion about trees move away from only the gazetted forest areas to trees in farms and rangeland. Here the Ministry of Environment and Natural Resources ought to broaden its selection of trees since some of the indigenous species grow slowly and the exotic varieties available are mainly for the high rainfall areas. Another problem is to identify types of trees which can be farmed together with crops, without damaging the latter. In this continent some traditional farming systems have, over the centuries, emphasised joint farming of crops and trees both for livestock feed and timber use. Those who have studied these systems find that they not only improve productivity per hectare but also lead to better soil use.

During the Madaraka Day speech, President Moi announced that a Presidential Commission will be formed to deal with soil conservation and afforestation. We hope that such a prestigious body will galvanise this country into making a serious commitment to handling the critical environmental issues as our future agricultural productivity and therefore, ability to feed ourselves will depend on our conserving our soil and forest cover today.

In so far as industrial pollution is concerned, Kenya should not wait for industries to cause pollution and then begin to allocate funds for cleaning. We have had industries polluting rivers to such an extent that livestock have died from drinking river water. The law for controlling such pollution exists. What is needed is an effective monitoring and enforcement system.

Where global pollution affects our environment — like carbon dioxide — we ought to take such issues to international forums and speak clearly in defence of our interests. We have a good record in international forums for spearheading issues like the Law of the Sea. There is no reason why we should not make similar contribution on the question of global pollution.

At the same time, we must take care of soil and afforestation in our own country.

NAIROBI DAM POLLUTION DISCUSSED

Nairobi DAILY NATION in English 6 Jun 80 p 18

[Excerpt]

CONSTRUCTED soon after World War II Nairobi Dam has since then been a popular spot for weekend leisure.

Besides the weekend sports of angling or sailing, people living in the shanty villages around the dam have continued to draw water from it for various purposes such as washing, bathing and even for drinking.

But currently, all is not well at the dam. There is the threat of pollution and also batheria.

The dam, as was recently reported in this newspaper, is being threatened with pollution by owners of oil tankers which are brought to be washed at the dam. According to one of the officials of Nairobi Sailing Club at the dam, "at least three tankers are washed in the evenings every week."

Every washing leaves

bottomed a film of oil which remains floating on the water for hours. The dangers from that: the state of life in the dam is balance "by the interaction of various forms of life and biological functions and if the oil affects one form of life or function, the result may be disastrous to the entire water body."

It means therefore that if the washing of tankers is left to continue, it will alter the balance of life in the dam.

The most important form of life in the dam is fish, which makes the sport of angling possible. The fish feed on water plants such as algae. But then, oil not only kills algae but retards its growth as well.

Owing to the dam's limited area, it is highly vulnerable to pollution and tankers should not, as a matter of fact, be washed in it and more so because

the dam is being used by the neighbouring population as a source of water. Steps should indeed be taken to quickly see that the dam remains free from oil pollution if its present state is to be maintained or even improved.

LACK OF MAINTENANCE OF GUTTERS, DRAINAGE DITCHES

Bamako L'ESSOR in French 17-18 May 80 p 5

[Article by Saouti: "Bamako Construction Sites"]

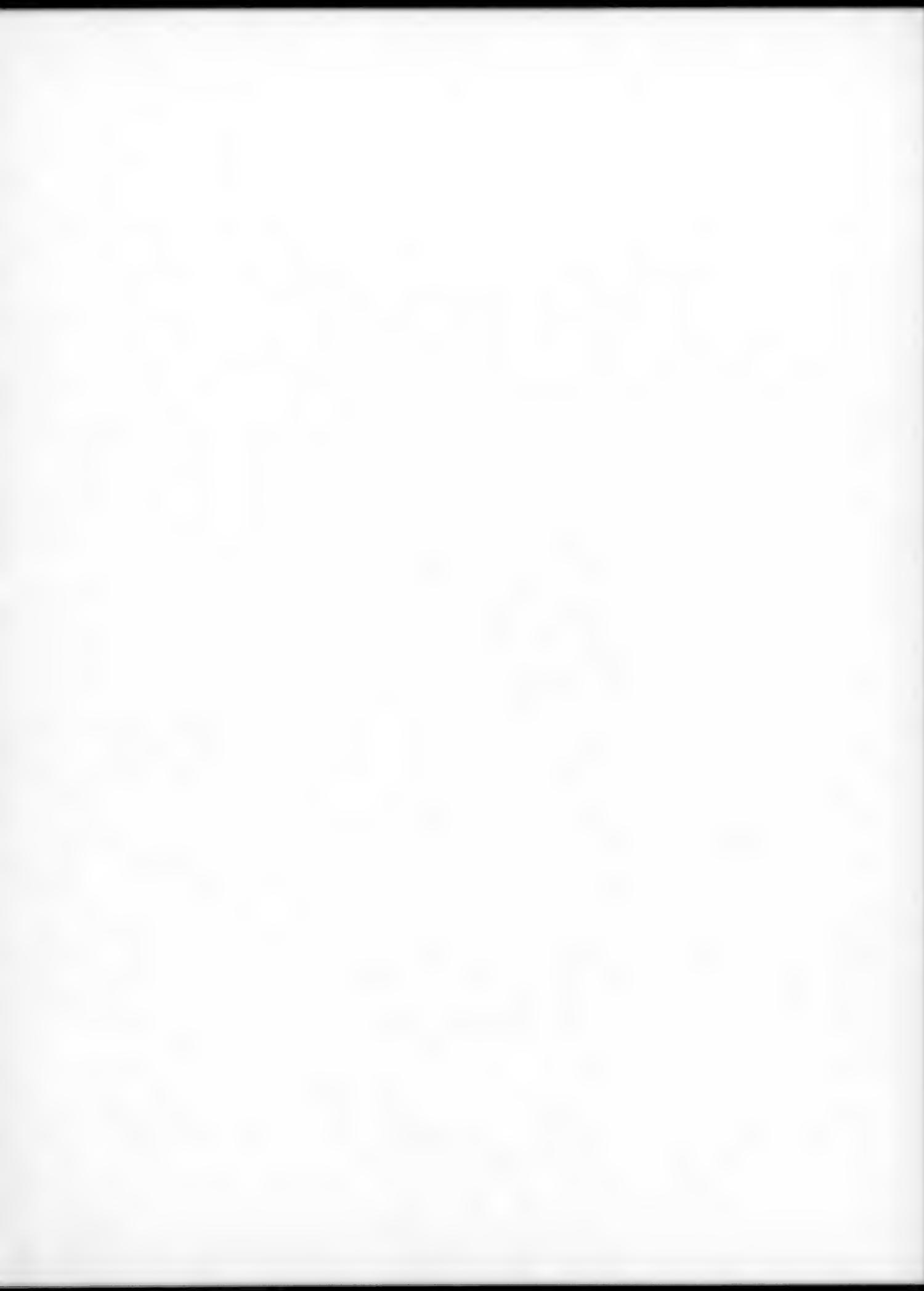
[Text] Members of the party's youth wing have decided to provide assistance to the Selingue region inhabitants who must relocate because of the ongoing construction of the dam. This is a reassuring sign that the UNJM [National Union of Malian Youth] is active. One is then tempted to say: "Let us hope it lasts."

Indeed, there are quite a few opportunities so that "it should last." For instance, as winter is nearing, Bamako displays the kind of uncaring attitude that horrifies all those who still remember the terrible 1974 floods. It is often said that excessive heat presages excessive rains. If this is true, it is to be feared that the city and its inhabitants may spend some very unpleasant times, head in the sun and feet in the water: Indeed it seems that the lessons imparted by the calamity which struck dozens of Bamako families 6 years ago have been forgotten.

Most of the gutters of the capital remain resolutely stopped-up. Evidently, no one has even thought about digging new ones. Drainage ditches for rain and dirty water are in such a state of disrepair that it would take very little for them to overflow. In the eyes of the good women of our neighborhoods who have transformed them into garbage pits, these ditches are not man-made, but actually God-given gifts. Has anybody ever worried about persuading them it is not so? Of course, let it be noted that, garbage pits or not, they practically lose all usefulness as soon as the gutters leading to them have themselves reached their point of saturation.

There is danger ahead. And our National Youth Union could provide a helping hand in conjuring it. After the relocation of the Selingue residents, it could recall its troops to Bamako; and--why not?--the UNTM [National Union of Mali Workers] as well could add its contingents. Authorities could then provide the necessary tools (spades, pickaxes, etc.) and, it goes without saying, the indispensable food.

Since independence, a considerable number of social investments (schools, dispensaries, roads) have been completed under similar conditions. This should be turned into a consistent policy. Indeed, this is the ambition of the party, which intends to mobilize a country's creative forces in the process of building a nation.



MOZAMBIQUE

SWIMMING, FISHING IN MAPUTO PORT AREA PROHIBITED

Maputo NOTICIAS in Portuguese 10 May 80 p 2

[Text] All fishing and swimming activities have been completely prohibited in Maputo in the area between the Clube Maritimo de Desportos next to the Quatro Estacoes Hotel and the Port.

This important measure has been taken because of the need to create and preserve better health conditions for the population by preventing the contracting of diseases from contaminated waters.

According to the communique of the Ministry of Health, distributed yesterday to the national information media, the problem of the flow from the sewers of the city of Maputo in the beach area between the Clube Maritimo de Desportos and the port is well known by the people of Maputo. Especially serious is the contamination of the sea water and the beach sand in the area between the Miramar Restaurant and the Naval Club. Puddles of badly smelling water from the sewers are constantly seen in this area.

This situation is not new and is due to deficiencies and defective operation of the sewer network in the city of Maputo. However, in spite of the bad appearance and bad smell in this area of the beach, many inhabitants of Maputo use it to swim, fish and catch bait for fishing. At the present time the use of this area of the beach is especially dangerous. The sewers carry remains of dishwater from kitchens, water from the streets and remains of feces and urine from the bathrooms of the city. The Maputo sewer network is quite old and therefore the product that it discharges into the sea is quite dirty and infected, says the communique from the Ministry of Health.

Risks Arising From the Use of This Portion of the Beach

The dirt carried by the sewers discharges into the sea, the sand of the beach or into the mud at low tide. When we swim in this area, our skin, ears and eyes are attacked by the bacteria carried by the sewers, and can produce diseases in these parts of the body. When we swim, we swallow contaminated water, even if in small quantities, and this can cause serious diarrhea and, at the present time, we cannot exclude the risk of catching cholera when we swim in these areas.

Another especially serious aspect of this contamination are the fish, shellfish and bait for fishing that are caught in this area. They feed on the products brought by the sewers and are, therefore, infected. When we eat the fish or the shellfish caught in this area, we can contract diarrhea and even cholera. It is also dangerous to use the bait for fishing collected in this area because it will infect the fish on which the bait is used and the people who walk in the mud to collect the bait can also become contaminated and transmit the disease to their families and neighbors.

Because of these reasons and in order to preserve public health, strong measures have been taken which prohibit swimming, fishing or catching shellfish or bait for fishing in the entire area located between the Clube Maritimo de Desportos and the port. These activities can be carried out in the area of the beach in front of that recreation club, including the section leading to Costa do Sol. In a few days measures of control will be instituted to catch those who do not follow these orders.

These measures do not affect the beaches of Catembe, where swimming and fishing are allowed.

11634
CSO: 5000

KUISEB ENVIRONMENTAL PROJECT SEMINAR REPORTED

Windhoek WINDHOEK OBSERVER in English 10 May 80 p 7

[Text]

IN a press statement issued by Dr. Wessel van Wyk, Deputy Director General (Mineral and Energy Affairs) on the progress of the Kukub Environmental Project, he stated that a research seminar on the progress of the project was held in Windhoek last week.

Present at the seminar were scientists from a number of universities and museums as well as a number of officials. Fifteen progress reports were delivered, according to which considerable headway was made. The research project is assigned to three study groups i.e. the hydrological, geomorphological and ecological panels. At this

stage conclusive deductions cannot yet be drawn as virtually all the projects are long-term monitoring programmes.

Hydrological monitoring indicates that the water-level of the Kuiseb river has not dropped. The report also indicates that there is no deterioration in the quality of the water. Geomorphological research concerns a study of the sand of the dune-sea which borders the Kuiseb river on its Southern bank whilst ecological research concentrates on the influence of natural and human activities on the environs of the Kuiseb, especially pertaining to nature conservation and agriculture.

To date this group has found that the game population of the Namib desert park has increased considerably and that the animals are in good condition. In view of the prevailing drought conditions however, numbers will out of necessity have to be reduced. The game catching unit of the Nature Conservation and Tourism Division are at present in the process of catching mainly Zebra and Gemsbok, the intention being to capture approximately 1000 animals which will be sold to farmers.

If the research progresses according to plan, a comprehensive report will be released to inform the public during the course of 1982.

CSO: 5000

ETOSHA AREA SAID DROUGHT-STRICKEN, NEGLECTED

Windhoek WINDHOEK OBSERVER in English 17 May 80 p 18

[First-hand report by [Editor] J.M. Smith in the column "Smithie's Observation Post": "Once It Throbbed With Life but Now in Desolation"]

[Excerpts]

We were in the region bordering the Etosha game reserve more or less at the point where the Game Parks crosses the Outjo district at a northwesterly point.

I took a 36-hour excursion to sneak out of Windhoek and to visit a region which definitely must rank at the present moment South West Africa's most forlorn area. It is a piece of our country that is ripe for entire dissolution. It is a region that has been abandoned by people who came there 40 years ago. To them was allotted as settlers a piece of South West Africa, which does not require tenderfeet but hardened men. These are the people who despite the imminent catastrophe facing them, are checking their tongues before availing themselves of remarks about other people. Their land is bone-dry and even a hard breathing man could cause a wisp of dust, yet when they spoke of Mr

Henning Snyman, the chief executive of the SWA Agricultural Union there was no bitterness.

HENNING SNYMAN

I asked them if Mr Snyman had ever visited the region so as to ascertain for himself what conditions were. The spokesmen for the group of farmers said that Mr Snyman had not called.

Mr Snyman, the speaker went on, was a fine and competent personality but, the spokesman said, the unfortunate facts were that Mr Snyman was too involved in other activities.

I asked the speaker to elaborate and he said that Mr Snyman was a high-ranking personality in the country's fighting forces and a senior official of South West African rugby.

How would such a man, the farmers wanted to know, give full time attention to a drought-stricken region on the verge of collapse.

CSO: 5000

BRIEFS

DROUGHT ASSISTANCE--The High Executive Council Acting President Sayid Catkuoth indicated that there is a severe drought in the Pibor area of the Southern Region in Sudan. The government has allotted £s 45,000 in aid for the affected area and exempted the Moorlei people from paying taxes for the year. [Excerpts] [Khartoum SUDAN NEWS AGENCY BULLETIN in English 5 Jun 80 p 7]

CSO: 5000

UKRAINIAN ENVIRONMENTAL PROTECTION MEASURES

Kiev PRAVDA UKRAINY in Russian 17 May 80 p 3

Article: "Official Section: Constant Attention to Nature Conservation"

Text In fulfilling the decisions of the 25th CPSU Congress and the 25th Congress of the Communist Party of the Ukraine and the decrees of the party and the government on nature conservation issues, the ministries and departments of the Ukrainian SSR, the oblast soviet executive committees, enterprises, kolkhozes and sovkhozes of the republic have stepped up the activity on nature conservation, the control of environmental pollution, the renewal and rational use of natural resources.

Questions of stepping up nature conservation and improving the use of natural resources have begun to be examined constantly by the executive committees of the local soviets of people's deputies and by the collegia of the ministries and departments, which was conducive to the further development of nature conservation work in the republic.

In four years of the 10th Five-Year Plan capital investments in excess of 3.3 billion rubles were used for implementing measures on nature conservation. During this period new sewage treatment facilities, circulating water supply systems, gas-purifying and dust-trapping facilities were put into operation. State monitoring of the conservation and rational use of land resources was stepped up.

However, some ministries and departments of the Ukrainian SSR are not devoting proper attention to the timely implementation of nature conservation measures. Cases of the ineffective use of the assets allocated for this purpose, the nonfulfillment of the plans of the capital construction of nature conservation facilities and the untimely placement into operation of facilities for the purification of water and harmful emissions into the air are occurring.

The Ukrainian SSR Council of Ministers examined this question and adopted the decree "On the Progress of Implementing the Decisions of the Party and Government on Stepping Up Nature Conservation." The decree, in particular,

obliges the ministries and departments of the Ukrainian SSR, the oblast soviet executive committees, the Kiev and Sevastopol' city soviet executive committees to step up the organizing work on implementing the decisions of the party and government on questions of nature conservation, to ensure the unconditional fulfillment of the plans of construction, the priority placement into operation and assimilation of treatment facilities, to implement additional measures on the improvement of the operation of operating purification equipment, to ensure the strict economy of water consumption for technological purposes and to considerably expand the introduction of circulating water supply systems.

The ministers and executives of the departments of the Ukrainian SSR are commissioned to take under personal control the course of construction of nature conservation facilities.

The government has set for the appropriate ministries of the Ukrainian SSR the task of taking steps on eliminating the lag in the construction of nature conservation facilities, on ensuring the unconditional fulfillment of the established assignments on placing gas-purifying and dust-trapping facilities into operation in 1980, as well as on the more efficient operation of operating purification facilities and equipment.

The Ukrainian SSR Ministry of Motor Transport and the ministries and departments of the Ukrainian SSR, which have motor transport, have been charged with taking additional steps on the improvement of the technical condition of motor vehicles and the further reduction of the pollution of the air by vehicle exhaust.

In 1980-1982 the construction of standard warehouses for the storage of toxic chemicals should be completed at kolkhozes, sovkhozes and other farms.

It is envisaged to broaden the scientific research on the development and introduction in production of low-waste and wasteless technologies, effective means of purifying sewage and demineralizing shaft water, fundamentally new means of reclaiming the waste products of mining, metallurgical, industrial and agricultural production. The Ukrainian SSR Ministry of Land Reclamation and Water Resources jointly with the ministries and departments of the Ukrainian SSR is charged with ensuring the elaboration and adoption of scientifically sound standards of water consumption in industry and agriculture.

The Ukrainian SSR State Committee for the Protection of Nature should radically improve the work of the Interdepartmental Scientific and Technical Council for Complex Problems of Environmental Protection and the Rational Use of Natural Resources and should aim its activity at the elaboration of recommendations on the most important problems of environmental protection, which are of great importance for the national economy and its individual sectors.

The government has ordered the appropriate ministries and departments of the Ukrainian SSR to step up the monitoring of the fulfillment of the decisions of the party and government on questions of environmental protection and the rational use of natural resources.

BILL ON AIR PROTECTION DISCUSSED

Moscow IZVESTIYA in Russian 18 Apr 80 p 3

Article by V. Shapritskiy, head of a department of the All-Union Order of Lenin State Institute of Planning Metallurgical Plants: "With a Scientific Approach"

Text The many years of experience of our institute on elaborating measures to protect the air basin show: their adoption is being checked by the fact that the assets, which the state is allocating for capital construction, are being used to the utmost for the construction of facilities which ensure the output of basic products, while the construction of facilities to protect the air from emissions which pollute it is being postponed "until later."

In this connection I propose to state Article 7 of the bill (after the first paragraph) in the following form: /"The planning of measures on the protection of the air is carried out on the basis of the comprehensive programs for industrial centers, which are drawn up with allowance made for the short-range and long-range forecasts of its condition.

"The optimum sequence of the introduction of measures on the protection of the air, on the basis of which the State Planning Committees of the USSR and the union republics set the plan assignments for the ministries, state committees and departments, is specified in the comprehensive programs.

"The assets for the implementation of measures on the protection of the air for existing shops and units are planned specially, separately from the assets for basic production.

"The measures on the protection of the air, which are specified in the comprehensive programs for sources of air pollution, which are being newly built and which exist, are subject to approval by the organs which carry out state monitoring of the protection of the air in accordance with the procedure established by legislation of the USSR and the union republics" in boldface.

During a visit to Dnepropetrovsk in September 1979 General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet Comrade L. I. Brezhnev noted: "There was a time when we tried to start up a plant more rapidly, to yield products at any cost. Today we should build in order to spare nature. We must also update old enterprises so that they would not harm the environment."

The task was set to achieve a decrease of air pollution in our industrial regions. In order to solve it successfully it is recommended to include in Article 13 following the first paragraph the addition: /"For the purpose of preventing an increase of air pollution in the case of new construction or in the case of the increase of the capacity of operating equipment, measures on the protection of the air against operating sources of air pollution should be a part of the start-up complexes"/ /in boldface/.

When elaborating measures on the protection of the air data on the composition and quantity of harmful emissions are frequently missing in the materials of the scientific research work and in the descriptions of the equipment. This complicates the choice of technical decisions. In order to resolve this matter it is advisable to add to Article 14: /"Scientific research work on technological processes should contain a qualitative and quantitative description of the emissions into the air and recommendations on their neutralization.

"The technological equipment, the operation of which entails the emission of harmful substances, should be developed with covers for preventing unorganized emissions into the air, while its technical specifications should contain data on the composition and quantity of the emissions"/ /in boldface/.

In the USSR the standards on air protection, especially in the area of the maximum permissible concentrations, have been elaborated more thoroughly and are distinguished by greater demands than in many other industrially developed countries of the world. But the constant inclusion of new substances in the production processes and the increased care in the elaboration of sets of measures on the protection of the air periodically force us in conformity with health standards to request of the USSR Ministry of Health permission to emit into the air a certain amount of a harmful substance, the maximum permissible concentration of which has not yet been established. We do obtain such temporary permission, but, of course, after receiving permission we cannot set the maximum permissible concentration ourselves--the appropriate institutes of the USSR Ministry of Health should perform this work.

Taking into account what has been said, in order to precisely delimit the duties on the establishment of standards in the last sentence of Article 8 of the bill after the words "during this period" it is proposed to insert the words: /"by the organization which issued the temporary permission"/ /in boldface/.

The prevention of air pollution in many ways depends both on the technical level of the equipment and on the comprehensive monitoring of the technological processes and the timely limitation of the emission of harmful substances into the air. Unfortunately, the organizations doing the monitoring check only the operation of the main gas purification systems. Here the majority of flues, through which harmful substances enter the air, remain uninspected. Taking this into account, after the words "the observance of the conditions of emissions of pollutants into the air" I propose to state the first paragraph of Article 25 of the bill in the following reading: /"the correctness of the management of technological processes from the point of view of the prevention of air pollution, the sealing of equipment, as well as other regulations, which are established by legislation on the protection of the air"/ /in boldface/.

On the whole the bill evokes great satisfaction. Its passage and the elaboration of a number of specific statutes and regulations, which is forthcoming on its basis, will make it possible to meet the demand of the USSR Constitution on keeping the air clean for the present and future generations.

7807

CSO: 5000

NOVOKUZNETSK ENVIRONMENTAL PROTECTION ACHIEVEMENTS, FAILURES

Moscow EKONOMICHESKAYA GAZETA in Russian No 20, May 80 p 22

Article by G. Birskiy, chief of the supernumerary Department of Science and the Protection of Nature of the City Committee of the People's Control (Novokuznetsk): "The Decisions Must Be Fulfilled"

[Text] A special decision on measures to prevent the pollution of the Tom' River with untreated sewage and the air basin of the cities of Kemerovo and Novokuznetsk with industrial emissions was adopted seven years ago.

The Novokuznetsk City Committee of the People's Control set up special control over questions of the implementation of these measures. The patrollers systematically checked and analyzed the state of affairs at all the nature protection facilities--both those in operation and those under construction. And there are many of them. The long-range program, which was intended for up to the end of the 10th Five-Year Plan, provided for the construction of 82 facilities with a total estimated cost of more than 300 million rubles.

A comprehensive plan on protecting the environment of the city was drafted and approved by the city party committee and the city soviet executive committee to coordinate the work of construction, installation, planning and scientific research institutes of the city on improving the public health condition of the water and air basins. The monitoring of its fulfillment became the special concern of the patrollers.

In the past six years about 100 million rubles have been spent on all types of nature protection work in Novokuznetsk. These assets have gone mainly for the construction of nearly 200 gas-purifying and dust-trapping facilities and 35 sewage treatment plants. The conversion of the blast-furnace and open-hearth shops, the TETs and peak boiler house of the Kuznetsk Metallurgical Combine to natural gas, which arrives from the Tyumen' fields, yielded especially appreciable results.

At this combine the first section of the circulating water supply system was put into operation a year ago, the construction of the second section of

this system is being completed, which makes it possible to feed into the circulating circuit more than 10,000 m³ of industrial water each hour.

There are many such examples. Suffice it to say that the checks made by the Committee of the People's Control established that of the comprehensive plan of environmental protection of the city in the past two years alone 88 measures have been implemented on improving technological processes and increasing the efficiency of operating water treatment, gas-purifying and dust-trapping facilities. The degree of pollution of the Tom' River and the city air has been reduced. It has been reduced, but not eliminated. Why?

The enterprises and construction organizations of the city are poorly utilizing the assets for their construction. Thus, last year for the city as a whole only 64 percent of the plan was fulfilled, including 56.3 percent for the Kuznetsk Metallurgical Combine, 64.4 percent for the Western Siberian Metallurgical Plant, 48.4 percent for the aluminum plant, 49.8 percent for the ferroalloy plant and 58.6 percent for the Organika Production Association (the chemical and pharmaceutical plant).

What is worse, many of the set deadlines are not being met at all. For example, back in 1975 such operations as the replacement of the cupolas with induction furnaces in the casting shop of the Western Siberian Metallurgical Plant, the conversion of the quenching of coke to industrial water at the Kuznetsk Metallurgical Combine, the facility for the purification of shaft water and sewage at the Bungurskaya Mine should have been completed. But so far none of these projects have been put into operation.

How is all this to be explained? The analysis of the checks made by the organs of the People's Control shows that many managers of enterprises and construction and installation organizations consider the fulfillment of nature protection measures to be a secondary matter. Such a stand is traced especially clearly using the example of the Kuznetsk Metallurgical Combine, where it was planned to build by the end of 1980 30 nature protection projects. However, only eight had been put into operation by the beginning of this year. The design documents for eight projects (the general designer is the Siberian State Institute of Planning Metallurgical Plants) are not even available.

Without removing the responsibility for the formed situation from the managers of the combine, it is necessary, however, to earnestly reproach the USSR Ministry of Ferrous Metallurgy and the USSR Ministry of Construction of Heavy Industry Enterprises. The former was commissioned to build at the combine a nominal list of nature protection projects, having indicated the dates of their placement into operation. The USSR Ministry of Ferrous Metallurgy is obliged to back the construction with financing, design documents and the appropriate material and technical resources. But it has included only 15 projects in the 10th Five-Year Plan.

There is another reason for the slow rate of construction of nature protection projects. It is the exceptionally great amounts of construction and installation work, which are performed annually by the main construction organisations at the main industrial projects, particularly the Western Siberian Metallurgical Plant, the Kuznetsk Metallurgical Combine and other plants.

In this connection for a number of years a proposal on the creation in the city of a specialized combined construction organization for building nature protection facilities was discussed and adopted at various levels. This proposal, unfortunately, to this day has not been embodied in anything.

Such a situation has also formed at the chemical and pharmaceutical plant of the Organika Production Association.

Moreover, the operating nature protection systems and gas-purifying and dust-trapping facilities are being used extremely unsatisfactorily. The repeated checks by various inspectorates of the city and by organs of the People's Control are revealing far from encouraging phenomena. And the sanctions being taken so far have not yielded the proper impact.

7807
CSO: 5000

SMOKE TRAP FOR HEAT, ELECTRIC POWER STATIONS

Moscow MOSKOVSKAYA PRAVDA in Russian 13 Apr 80 p 3

Article by V. Melik-Nubarov: "A Trap for Smoke"

Text Very tall flues, which spread in the sky gray streaks of smoke. Massive cylinders of cooling towers, which are wrapped in puffs of steam. TETs's heat and electric power stations, without which no modern city can do today, duly perform their immediate functions, transforming fuel oil and coal into electric power and hot water.

But you would not call them an adornment of the urban landscape. And such a proximity does not please the residents of the nearby blocks. Economists consider the efficiency of TETs's to be inadequately high, ecologists are displeased with the effect of TETs's on the environment. The plume of smoke initially also attracted the attention of physicists of the Institute of High Temperatures of the USSR Academy of Sciences. It was decided to save people and nature from it, and at the same time to obtain valuable substances from the trapped smoke.

What is a TETs? In principle it is a boiler with a furnace. Coal, fuel oil and gas are burned in the furnace, steam, which turns the turbines with electric generators and heats water for heat supply, is generated in the pipes. Owing to this thermal electric power stations consume the lion's share of the fuel resources of the country. And at the same time serve also as a source of air pollution. Is it possible to get rid of the harmful influences of TETs's on nature?

The development of the scientists of the institute, who created a unique trap for smoke, served as an answer. The first industrial plant, which makes it possible to rid smoke of harmful ingredients, has been planned. Moreover, valuable chemical substances will be obtained from them. The plant for the gasification of fuel oil is capable of producing 420 tons of steam an hour. The gas obtained during the combustion of the fuel oil undergoes special filtration in the plant and enters the atmosphere practically clean. One such block has now been installed at the TETs of the city of Dzerzhinsk. The development of the Moscow scientists is being tested there. The capacity of the first plant is equal to the capacity of the ordinary

boilers of thermal power plants. But here it was possible to rid the sky of smoke and to obtain as a byproduct sulfur from the fuel oil and vanadium from the fuel oil ash--a concentrate of this chemical element. And having decreased the combustion temperature of the fuel oil, the scientists prevented the transformation in the furnaces of the TETs of atmospheric nitrogen into its oxides, which are harmful to the environment.

The plant installed at the Dzerzhinskaya TETs will be the initial stage in the building of a completely new type of heat and electric power stations. Their development has been completed by the Moscow scientists. How will they operate, these TET's's of the future?

As a result of partial oxidation in the furnace of coal or fuel oil fuel gas is generated, which after purification is not emitted into the air, but is burned up in several stages in the combustion chambers. Why in several stages? So that the combustion temperature could be reduced by 200-300 degrees--this will reduce to less than one-tenth the formation of oxides of nitrogen from the air. Thus not only is a barrier against harmful substances raised, but the efficiency of the TETs is also increased. In addition to extra heat, the gas will liberate products of combustion, which will turn the turbines also with the steam.

At such TET's the cost of electric power will be less than at modern steam turbine electric power stations, and they will not pollute the environment. Their efficiency is 10-20 percent higher. The massive steam boilers will disappear: compact steam and gas generators will replace them. The compressors will cease to consume a lot of energy, the cooling towers for cooling the circulating water of the condenser will disappear, the irrevocable losses of water will also be reduced. The main thing is that the gray streaks of smoke and the gigantic puffs of steam will disappear, the air surrounding us will become cleaner. And the TET's's, while continuing to supply cities with electric power and heat, will be transformed from sources of pollution into suppliers of raw materials for metallurgy and construction.

7807
CSO: 5000

PREVENTING POLLUTION BY MOTOR TRANSPORT

Moscow IZVESTIYA in Russian 19 Mar 80 p 3

Article by Belorussian SSR Deputy Minister of Internal Affairs P. Zhuk:
"Patrol of Cleanliness"

Text The submission of the draft of the USSR Law on the Protection of the Air for national discussion is another display of the concern of our government about the condition and protection of the environment. In connection with the discussion of this bill I would like to share some thoughts on how to reduce the pollution of the air by motor transport, and to tell about what work is being performed in Belorussia in this direction.

Stations for monitoring the toxicity of exhaust and tuning the engines of motor vehicles are being set up in all the oblast centers and cities of oblast subordination in our republic. In Minsk, for example, such stations have been set up at many major motor transport managements, especially of the system of the Ministry of Motor Transport. A diagnostic station of the State Motor Vehicle Inspectorate has been built in the capital of the republic. Here the workers of the State Motor Vehicle Inspectorate check the degree of toxicity of the exhaust of the buses of various motor transport managements of the city.

In recent years diverse environmental protection measures have been implemented in Belorussia, a search for new forms and methods of this important work has been made. I would especially like to dwell on the protection of the air basin of Minsk. The Minsk City Committee of the Communist Party of Belorussia and the Executive Committee of the City Soviet of People's Deputies have drafted a comprehensive plan of measures on the improvement of the air basin of the city.

Among the first and necessary steps, which anticipate the harmful effect of motor transport on the condition of the air, are the improvement of the quality of the service and repair of engines and the monitoring of the state of the sites of refueling and the warehouses of fuels and lubricants. Now stations and lines for diagnosing the technical condition of motor vehicles are being set up at major motor transport enterprises.

The Belorussian SSR Ministry of Motor Transport has developed a pilot model of a mobile station for checking the toxicity of the exhaust of engines. In the near future 50 such stations will be organized in the republic. The construction of centers for warming motor vehicle engines in the winter has been planned. By means of these and other measures it is proposed to reduce the pollution of the air by motor vehicles by 60 percent.

Recently the question of protecting the air basin against its pollution by the exhaust of motor transport was examined at the meeting of the Belorussian SSR Council of Ministers. The discussion was pointed, for many it was impartial. The workers of the State Motor Vehicle Inspectorate drew conclusions from the criticism addressed at them. The steps outlined by the republic government will undoubtedly help us to utilize the additional opportunities for protecting the air.

What are these opportunities? First of all there is the improvement of the organization of traffic. It is well known that the less often a vehicle stops, the less harmful toxic substances it emits into the air. To reduce as much as possible the stops of a vehicle in transit, especially on city streets, means to reduce the gas content of the air. It is possible to achieve this by means of the adoption of automatic control systems of transport. In Minsk traffic according to the principle of a "green wave" has already been organized on some especially congested thoroughfares. The uniform distribution of streams of traffic, which is aimed at limiting their movement over narrow streets in blocks with dense housing development, is also playing an important role.

Periodic checks of the content of carbon monoxide in the exhaust of motor vehicles are of great importance. Unfortunately, at many motor transport managements such checks are made, mildly speaking, only for form. Last year, for example, the workers of the State Motor Vehicle Inspectorate inspected 69,000 motor vehicles in Minsk. More than 7,000 of them while running unduly polluted the air. All these motor vehicles should not have left the garages without the appropriate repair. But they did. At motor transport combines Nos 4 and 6 of the administration of truck transport instead of checking the working order of the feed system of the engine on every motor vehicle, for some reason every other one is checked. At garages Nos 1, 3 and 5 of the administration of trade motor transport and at the garage of the Montazhspetssel'stroy Trust after the repair of the fuel equipment on motor vehicles the toxicity of the exhaust is not checked.

How are the workers of the State Motor Vehicle Inspectorate to act in such cases? They do not have, after all, effective penalty sanctions for the pollution of the air by motor vehicle exhaust either against the drivers or against the managers of the motor transport managements. In Minsk the workers of the State Motor Vehicle Inspectorate have formally been given the right to prohibit the operation of vehicles which pollute the environment. Fine, the worker of the motor vehicle inspectorate will take off the line a dump truck with an untuned engine, which delivers necessary material to a construction project. Whose loss is it? The state's. The negligent

manager of the motor transport management, by whose oversight the vehicle in bad repair went to the city, will be unpunished. And here, it seems to me, the decision of the local organs of Soviet power, which prohibit the operation of motor transport with a faulty feed system, does not completely solve the problem. It is a matter, after all, of principle. And I support the suggestion made on this question in IZVESTIYA (No 4, 1980) by G. Myagkova, an assembler of the Minsk Tractor Plant. Indeed, the managers of motor transport managements should bear the responsibility for the condition of motor transport.

In this connection, it seems, it is expedient to expand Section 3 of the draft of the Law on the Protection of the Air. Article 15 should be supplemented with the indication that /measures of punishment for the managers of motor transport enterprises, through whose fault the air is polluted, are set by the legislation of the USSR and the union republics/ /in boldface/.

In evaluating the work on preventing air pollution from the harmful influence of motor transport, it should be said that for the present it is being performed without adequate interest, the active participation not only of the managers of the managements, but also of the junior engineering and technical personnel, the drivers of the vehicles themselves. Therefore, in the same Article 15 after the words: "Transport and other self-propelled vehicles and equipment, the content of pollutants in whose emissions exceeds the set standards, are not allowed to operate" it should be added: /"The managers of transport enterprises, the engineering and technical personnel and the drivers bear administrative and financial liability for the departure of motor vehicles in bad repair from the yard"/ //in boldface/.

Private transport is a special topic. Seldom are any of its owners able to tune the fuel equipment on their vehicle well, even if they have a garage. But what is to be done with those vehicles which stand in the courtyards of apartment houses, in protected parking areas? There is an enormous number of them. But it is practically impossible to adjust the fuel equipment under such conditions. It would seem that the motor vehicle service stations should help the private owners. However, at Service Station No 2, for example, the monitoring and testing instruments are set up not at the diagnostic center, but in the repair area. And it turns out that the composition of the exhaust is checked only on vehicles which are being serviced. It is necessary to introduce such a procedure so that the percentage content of carbon monoxide in the exhaust would be checked without fail on a vehicle which has come to the service station.

It is also necessary to speak about the equipment, by means of which the degree of toxicity of motor vehicle exhaust is checked. The workers of the State Motor Vehicle Inspectorate do not have special, portable instruments which are easy to operate. The staff of the Oblast State Motor Vehicle Inspectorate alone has at its disposal one or two portable I-CO carbon monoxide indicators. The instrument is convenient, but provision with it, as we see, is little. Industry is now assimilating the GAI-1 instrument. I will note that it is unwieldy, awkward to use and capricious. However, only

about 10 of these instruments will be found at the subdivisions of the republic State Motor Vehicle Inspectorate. Neither the motor transport managements nor the workers of the State Motor Vehicle Inspectorate have instruments for determining the smokiness of diesel engines. All the monitoring here is done by eye: it smokes--it does not smoke. This is the subjective opinion of the inspector, it may be erroneous and in any case may be contested by the driver servicing the vehicle.

The following circumstance is restraining considerably the drive to protect the air against pollution by motor vehicles with carburetor engines. All-Union State Standard 17.2.2.03-77 makes it incumbent to monitor the degree of toxicity of exhaust only in cities with a population of 300,000 and more and in health resort areas. But in our republic there are only four such cities--Minsk, Mogilev, Vitebsk and Gomel'. In the other cities, it turns out, no one can be forced to strive for the cleanliness of the air! This is fundamentally incorrect.

Unfortunately, we have not yet taught the driver, we have not turned his psychology toward an understanding of the fact that with his smoking vehicle he is poisoning the air which both he himself and thousands of people are breathing. At the motor transport managements a procedure has not be introduced, in case of which the driver, who sets out on a run in a vehicle in bad repair, would be deprived of certain material benefits. This circumstance is also not taken into account when tallying the results of the socialist competition.

All these unsolved problems are hindering the effective drive for the cleanliness of the air, for its protection against pollution by the emissions of motor transport. The bill, which we are now discussing, obliges each of us to bear civic responsibility for the condition of the air in our cities. The passage of the new law will help to approach environmental protection in a new way, from the position of great demandingness.

7807
CSO: 5000

REUSE OF FACTORY WASTE WATERS IMPLEMENTED

Moscow IZVESTIYA in Russian 1 Apr 80 p 3

[Article by Yu. Belichenko, candidate of technical sciences, chief of the technical division of the Main Administration for Water Conservation of the USSR Ministry of Reclamation and Water Management: "Water for the Plant"]

[Text] Until recently the growing needs of the national economy for water have been satisfied, as a rule, only owing to new sources of it. This has led and is still leading in a number of regions to the creation of complex and expensive water management systems, uniting sometimes even several river basins. However today it is no longer possible to follow only the path of intensive exploitation of natural waters.

The 25th CPSU Congress set forth the task of more actively developing and introducing technological processes insuring a reduction in wastes and their maximum utilization, and also systems of water use according to a closed cycle. Closed return-water cycles play a large part in protection of the environment. This is because the economically expedient decontamination of waste waters provides in the best case the removal of 90-95 percent of the organic substances and 20-40 percent of the inorganic compounds. At the same time the residual impurities, removable with the purified waste waters, under the conditions of growth in production and a corresponding increase in the volume of waste waters, require an even greater amount of fresh water for their dilution (in order to make them safe for the environment).

Return and subsequent use of water for production does not exclude, however, complete disposal of the treated waters. The radical solution of the problem at the present time should be the creation of internal-drainage systems of water supply. The modern level of development of science and technology makes it possible in principle to create these in any sector of industry.

In recent years such systems have been introduced successfully at a number of chemical, petrochemical, metallurgical and pulp and paper enterprises. One of these is, for instance, the Verkh-Isetskiy Metallurgical Plant.

The rapid development of the plant and housing construction led to the point where it was in the center of Sverdlovsk, but the water was gotten from the Verkh-Isetskiy pond, a natural source of water supply for a large industrial center.

The most important question which had to be solved by the creators of the new system of water supply was how to exclude completely any discharge of the treated runoffs and wastes into the Verkh-Isetskiy pond. Organized at the plant was one of the first laboratories in ferrous metallurgy for purification of industrial discharges, outfitting with a good experimental industrial base. Enlisted in the solution of water management problems were the Uralgipromez planning institute, the Ural Polytechnic Institute, Uralenergochemet, SverdNIIkhimmash and a number of other organizations. A special group was set up at the plant for coordination of the work.

It was decided to convert the water supply of individual shops and facilities in the plant to return water supply, and in the future to create discharge-less systems. It was difficult to insure purification and repeated use of the waste waters in the shop for cold rolling of transformer steel. For this, model and semi-industrial units were assembled at the plant's experimental industrial base for purification of waste waters. Here large-scale experiments were conducted which showed that all discharges which are similar in composition can be joined with one another in order then to purify them in the corresponding facilities. Systems for purifying nine types of waste waters are already being used in this shop.

The purification facilities are located in several buildings. Etching solutions are treated on a silicon vitriol unit. The rest of the discharges are passed through a complex of purification facilities, which includes equipment for purification of waste waters and treating sediments, units for burning oil wastes, flotation and evaporating units, and constantly operating horizontal settling tanks. Organizationally the block of purification facilities is part of the shop for water supply and purification of the plant's industrial discharges.

Acidic iron-containing wash waters from the etching departments are purified according to a closed scheme. After purification the water is directed for repeat use. The iron-containing residues which form during purification undergo further oxidation (here magnetite is produced), and then the gypsum iron hydrate residue is dehydrated on filter-presses. The purification and repeat use of acidic iron-containing wash waters have shown the workability of the given scheme and the practical possibility of the circulation of such waters.

The wash waters from units for electrical insulation coating and units for decarbonization annealing, which contain finely divided magnesium oxide, are clarified in special settlers, after which the clarified water is used again in the shop, and the sediment is dehydrated on the

filter press. Filtration of the clarified water on quartz filters is provided for improving the purification. Oil-containing discharges are first settled in horizontal continuous action settling tanks, after which they are cleaned on the floatators. The clarified water is filtered on quartz filters and partly (20-30 percent) re-used for scouring metal after etching, with the remaining part going to the evaporation unit.

The task set forth of completely excluding any discharge of waste waters has been successfully solved. On the whole the cost of purifying a cubic meter of discharges in the considered schemes comes to from 10 to 25 kopecks. It can be expected that further improvement in the technology will make it possible to reduce these outlays as well.

The capacity of the discharge-less system of water supply in the shop reaches 400,000 cubic meters per day.

The cost of treating one cubic meter of discharge on an evaporation unit is rather expensive--one ruble. However the use of it instead of the storage pond has yielded an economic benefit of about 300,000 rubles per year and has saved 228 hectares of land. The solid sediments formed during purification of the discharges are dehydrated on mechanical filters and utilised, and the oil-containing sediments are burned together with the spent emulsions. The benefit from transmitting just the dehydrated sediment to the nearby gypsum plant comes to 49,000 rubles per year. The total economic benefit from operation of the discharge-less system of water supply comes to 1,350,000 rubles per year!

It should be noted that this figure includes just the direct benefits from operation of the system. Not even considered here is the great national economic benefit from the fact that pollution of the Verkh-Isetskiy pond is being prevented. Indeed this pollution previously had a negative effect on the operation of many enterprises. Thus, for instance, in the municipal and industrial water supply the poor quality of the water in the pond led to large additional outlays for purification of the water. When water from the polluted body of water was used the quality of the output of the enterprises was worsened, there was a reduction in the stability and strength of materials, the color of products changed, normal heat exchange in equipment was disturbed, and the capacity of technological equipment was reduced. I am not even mentioning the priceless benefit given by a sharp improvement in the sanitary condition of the pond for the state of the environment, and its esthetic perception!

The creation of a discharge-less system of water supply at the Verkh-Isetskiy Plant is a qualitatively new step in protection of the natural waters of the Ural region. This too has great significance not only for the Sverdlovsk people, (the city consumes a large amount of water for household and domestic needs, and this demand is increasing constantly), but also for many metallurgical and machine building enterprises. Operation of the system shows graphically that at the present time all the necessary scientific and technical premises exist for comprehensive protection of natural waters used by industrial enterprises.

The experience of more than six years of operation of an internal drainage system of water supply in the cold rolling shop of the Verkh-Ialetskiy Metallurgical Plant has demonstrated the reliability and stability of their operation. At the present time the drainage-free system of water supply for the hot rolling shop has been turned over, and thus the plant has been completely converted to drainage-free technology.

Now, when the problem of efficiently providing the enterprise with water and preserving the city pond has been solved, it stands to reason that we will discuss fundamentally new methods of treating discharges, and the unique equipment for the complex of purification facilities. But it should not be forgotten that all this began when the Ural people had neither practical experience in treating discharges, nor concrete scientific developments, nor the opportunity to borrow anything from anywhere. Especially great for this reason is the service of the plant collective in practical implementation of this three-fold task for the first time in world practice for this type of enterprise: to purify all waste waters, to use them again, and to utilize the sediments forming during purification of the discharges with benefit to the national economy.

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SLOWDOWN OF VOLGA RIVER CLEANUP PLANS NOTED

Moscow PRAVDA in Russian 28 Jan 80 p 7

[Article by A. Vorotnikov, PRAVDA correspondent, Saratovskaya Oblast'; "What is Visible in the Volga's Mirror?"]

[Text] The measures taken in recent years for protecting the purity of the Volga waters have yielded good results everywhere. The Volga has become cleaner from its sources to the south. True, everything that was planned still has not been done. Particularly on the Saratov section of the river. Why is this?

"We must name as one of the main polluters of the river now, if you please, the Saratov Biochemical Plant," states the chief of the hydrochemical laboratory of the Lower Volga Basin Administration, V. Bocharov.

"We have an old plant," explains S. Ogrel', the chief engineer. ""It has passed from hand to hand of different ministries more than once. Little attention has been given to questions of purification of waste waters. True, recently the Main Administration of the Microbiological Industry under the USSR Council of Ministers, to which we are now subordinate, set aside money for reconstruction of the purification facilities. Do not be surprised, we do have them."

More than 10 years ago a settling tank and an accumulator were built at the enterprise. They were built carelessly. The commission did not accept them and, with a huge need for them, they have been out of operation for all this time. Now more than half of the total amount of capital investments for reconstruction has already been used. It would seem that it remains to increase the rates and complete the matter sooner, but... It has been ascertained that after renovation of the plant purification facilities the Vodokanal Administration will not be able to switch the discharges into the nearest collector because it is overloaded. The outcome is that even after modernization the facility will again be condemned to inactivity.

It is planned to solve this problem only by 1985. Does this mean that for another five-year plan the unpurified discharges of the biochemical plant will go into the Volga?

Unfortunately, this is not the only enterprise which is "muddying" the water of the river. In the same Saratov poorly purified discharges are regularly thrown into it by the plants for electrical assembly machine building and receiver amplifier tubes, and in the city of Engel's by the enterprises of the Khimvolokno Production Association and the builders of trolley buses. On this level, the people in Balakov are not lagging behind their neighbors. Here the main polluter is the same Khimvolokno Production Association. The local chemical plant has been fined often. But yet when it was created a good idea was supplied: fully to cease discharging waste waters and to introduce closed circulation of the water. But then when planning it, and later even in the course of construction there were a number of violations, and operation revealed many imperfections. A valuable idea remained a good wish...

Of course the guilt cannot be taken away either from the planner or from the builders. But one cannot be protected by this shield forever! It is permissible to ask: what are they doing at the plant today? Are there people there who are interested, not in words but in deeds, in protecting the environment? They were successful, for instance, at the Saratov Oil Refinery imeni S.M. Kirov in setting up the purification of discharges. A unit for their biological purification has been operating successfully here for several years already.

"Would you like to see it in operation?" invites Yu. Batanogov, chief of the section, in the direction of the huge cylindrical reservoirs, at the oxygen station.

"The productivity of our installation," explains Yuriy Viktorovich, "is 35,000 cubic meters per day. After biological purification the waste waters completely correspond to the requirements set for us by the sanitary epidemiological station and the fisheries inspectorate."

Efficiency experts and specialists in the "Nitron" Association created an original unit for removing copper salts from discharges by the method of electrochemical precipitation. Recently new production capacities went into operation here. But the river is not suffering, and pollution of the waters has ceased completely.

Unfortunately, examples of this type have not become typical. At times even where purification facilities have been built they are operated carelessly, with large violations. The Lower Volga Basin Administration for Regulation of the Use and Conservation of Water, after recently checking a number of such facilities in Saratovskaya Oblast, discovered that half of them is operating inefficiently.

The Volga is polluted not only by industrial enterprises. Not all the cities on its banks have good sewer systems. In the oblast center also only small-capacity mechanical purification of household wastes is being used up to now. Four years ago a technical plan was approved for expanding the sewer system in Saratov. Its indicators are gratifying: the

productivity of full biological purification is 600,000 cubic meters per day, the length of the collectors is 58 kilometers. The construction is being done by trusts No. 1 and No. 9 of Glavprivolshakstroy. I have been to this project more than once. And every time there I met the chairman of the Saratov city executive committee Yu. Myanikov. With his assistance industrial enterprises were brought to the aid of the builders.

"But how can it be otherwise," says Yuriy Alekseyevich. "Everyone who lives in it should be concerned about the city. We are obliged to leave a clean river for our offspring."

The first phase of the purification facilities should go into operation in 1980, and the rest, as planned, in 1982. But this is with the great persistence of the city executive committee, with the active support of local party agencies.

Where such persistence and concern is not manifested, naturally, things turn out worse.

"Our anxiety is aroused by the state of the sewer systems in the cities of Vol'sk and Marks," related N. Petrov, head of the department of communal hygiene of the oblast sanitary epidemiological station.

Almost three years ago the Saratovgrazhdanproyekt Institute compiled the technical documentation for a new sewer system in the city of Marks. It took about a year and a half to decide who would be the client and who would be the contractor. Finally two trusts of Glavaredevolgovidstroy were instructed to work on the project. A number of local enterprises and organisations should have had share participation in the construction project. However, the brewery, the creamery, the rayon Sel'khoztekhnika Association and others did not allocate money for this.

Such projects still have not begun to be built in Vol'sk and Khvalynsk. The second phase of the sewer system is being erected very slowly in the city of Engel's. Primarily guilty in this case is the general contractor, trust No. 3 of Glavprivolshakstroy. In the last five years the builders have fulfilled the annual plan at this project only once. Also with a poor showing are the enterprise-shareholders belonging to the Ministry of Installation and Special Construction, the Ministry of Power and the Ministry of Water Management of the USSR. For instance, the Engel's reclamation enterprises allotted only 500,000 rubles instead of the foreseen 2,250,000. The plants for ventilation blanks and metal structural parts together with the Volgoprodmontash Construction-Installation Administration were obliged to grant 1,400,000 rubles, but they allotted only 200,000.

There is another source of pollution of the Volga--the small boat fleet. In Saratovskaya Oblast alone there are about 30,000 motor boats.

"And each of them," relates P. Akhremochkin, senior inspector of the oblast fisheries protection agency, "'supplies' to the water daily on the average up to 100 grams of gasoline and oil..."

The picture turns out to be "motley" when you summarize the separate impressions about the work for protection of the "Saratov" part of the Volga. There are many good things among the local petrochemists, in the "Nitron" Association and many, many other organizations. But still, as we see, in Saratovskaya Oblast far from enough has been done.

By the way, they are also not very considerate here toward those who are standing on guard for their health: the workers in the fisheries inspectorate, the hydrochemical laboratory and other services. The oblast inspectorate of fisheries protection, consisting of 24 people, takes shelter for a long time in a 10-meter cellar. The collective of the territorial hydrochemical laboratory works in very constrained conditions. Is this not an indicator of the attitude of the oblast's leadership toward the river? This is a matter not only of the necessity of improving the working conditions of workers in these services, but also of the prestige of those who are preserving the purity of the Volga waters. The ministries, which have jurisdiction over these services, on their own part should show more concern about them.

The people call the Volga by many affectionate and endearing names. But we must express our attitude toward it by good deeds, not just by beautiful words.

The discussion of the purity of the Volga continues in the material "From the Sources to the Mouth."
[See next article.]

10908
CSO: 5000

RECLAMATION DEPUTY MINISTER TELLS ABOUT VOLGA CLEAN-UP

Moscow PRAVDA in Russian 28 Jan 80 p 7

[Article by I.I. Borodavchenko, deputy minister of reclamation and water management of the USSR: "From the Sources to the Mouth"]

[Text] Discussed in the correspondence of A. Vorotnikov was how matters stand regarding safeguarding the purity of Volga waters on one section of our great river. But what is happening along its whole length--from Rzhev to Astrakhan', in the vast Volga basin? This question is answered by the deputy minister of reclamation and water management of the USSR, I.I. Borodavchenko.

It is an important state goal to reduce pollution of the Volga to a minimum, to eliminate completely the harmful effect of industrial and municipal discharges on the quality of Volga water. However in view of the prolonged action of polluted discharges on the river, solution of this problem requires a considerable amount of time.

Much has been done in recent years. At 298 enterprises, 413 water-conservation facilities have been put into operation, including purification facilities taking in daily 3.15 million cubic meters of contaminated discharges. Large complexes of such facilities are operating at the Volgograd and Perm' oil refineries, the Salavat Petrochemical Combine, at the mine imeni 40-letiya Oktyabrya in the city of Gremyachinsk, and at many other enterprises. Facilities for biological purification of city sewage have been put into operation in Kalinin, Gor'kiy, Kuybyshev, Volgograd and other cities. Their total capacity is 4 million cubic meters per day.

These and other measures have led to a marked improvement in the sanitary condition of many sections of the Volga itself and of its tributaries. For instance, in the upper course at Rzhev the content of organic substances in the river water does not exceed the established norm, while in 1974 it exceeded this norm. Discharges of enterprises in Cherepovets

still have an undesirable effect on the Rybinsk reservoir, but even here the content of phenols and organic substances does not exceed the permissible limits. The pollution of Volga water by phenols was reduced three-fold in the region of Balakhna. Near Gor'kiy even in 1974 the content of organic substances in the water often was two-three times greater than the norm, but recently this indicator has not exceeded the norm.

However many enterprises and cities due to the absence of water conservation facilities, and sometimes due to unsatisfactory operation of existing ones still continue to discharge unpurified or inadequately purified runoffs into the river. Municipal discharges from Sarapul, for instance, are sent into the Kama river without adequate purification. The introduction of facilities for biological purification in Kazan' is being delayed. The left-bank purification facilities in Ul'yanovsk have not been put into operation. They are operating at half capacity in Perm', and meanwhile here and there the planned deadlines for completion of construction have already elapsed.

Construction has also not been completed on 44 water conservation projects at 37 enterprises of the ministries of ferrous metallurgy, the timber and woodworking industry of the USSR, the pulp and paper and chemical industry, and Glavmikrobioprom [Main Administration of the Microbiological Industry]. The reason is that the ministries and departments do not always give due attention to the water conservation construction projects. It seems that local party and soviet agencies should also manifest more concern about the cleanliness of the river.

10908
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SHORE PROTECTION STRUCTURE DESIGNS DESCRIBED

Moscow TRANSPORTNOYE STROITEL'STVO in Russian No 2, Feb 80 pp 15-17

[Article by A.M. Markov, chief of SU-459 of Krymmorgidrostroy: "Rational Types of Shoreline Protection Structures"]

[Text] In accordance with the technical specifications for planning sea shore-protection structures (VSN 183-74), designated very deep are shores with the steepness of the underwater slope in the 100 meter zone, counting from the water line $i \geq 0.03$.

From this standpoint the southern shore of the Crimea from Laspa to Alushta should be included among the very deep and, consequently, the methods of calculation and construction used for shoreline protection, and also the cost of the structures should not differ sharply. However the practice of active shore protection on the southern shore of the Crimea (YuBK; yuzhnaya berega Kryma) in the course of almost 20 years, and also an analysis of the underwater terrain and the results of wave calculations show the necessity of further definition of the concept of a very deep shore and correspondingly the need for refinement both of the calculation methods and of the types of constructions used under such conditions.

When selecting designs for shore-reinforcement structures on the southern shore of the Crimea, it is necessary to take into account the following basic features:

the slopes of the bottom of the shoreline zone in the 100 meter band are considerably higher than the standards of VSN 183-74 and require a different approach when analyzing the underwater incline and the recommendations regarding designation of effective structures;

for the majority of sections there is constant washout of the shoreline from several centimeters to several meters per year with a complete absence of natural flows of drifts along the shore and a sharp difference in the exposure of nearby sections of the coast from a resultant wave;

for many sections, there is the presence of an underwater natural cobblestone-block embankment at a depth of 4.5-13.0 meters with natural

arming of the underwater slope with cobblestones and block in the region of this bench, usually up to depths of 2.5 meters;

for sections with a natural underwater bench there is the absence of any interconnection between the sandy and pebbled sediments on the underwater slope;

the maximum wave action on the coast in the limits of the Black Sea is here.

In addition, when selecting the constructions and types of shore reinforcement it is necessary to keep in mind the purpose of the section of the coast and the degree of value of the buildings and facilities located on the upper brow of the slope.

With a certain portion of arbitrariness it is possible to divide the very deep coasts on the southern shore of the Crimea into three types.

Type I (fig. 1, a) is characterized by a continuous change in depths over the full extent of the profile and an average incline of 0.035-0.065 at the 100-meter bands, counting from the waterline; this type corresponds to the definition of very deep shores according to VSN 183-74.

Included in type II (fig. 1, b) are the sections of the coast with a natural underwater bank at depths usually of 4.5-7.5 meters with the distance from the waterline 50-80 meters (from 0.08 to 0.012) with a sharp drop behind the bank to depths of 9.0-13.0 meters (slope of the section 0.15-0.30). A compulsory characteristic of such a profile is a sandy beach, beginning immediately after the sharp drop in the depths. The slope of this section for various conditions is uniform and fluctuates from 0.07 to 0.01 without sharp drops.

Type III (see fig. 1, c) comprises the sections of the coast with an average slope from the waterline of depths of 7-10 meters equal to 0.13-0.25 meters.

For the last two types of sections of the coast it is not possible to consider the 100-meter zone when determining the steepness of the underwater slope, since in the limits of this zone, as we will see, sharp fluctuations are observed in the incline of the bottom, which have a substantial effect on the calculated characteristics of the structures and designs.

On sections of the coast of types I and II, active construction of shore-reinforcement structures was begun at the end of the 50's.

However the limitedness of the territories on the southern shore of the Crimea adaptable for construction has required in recent years the solution of a number of problems for development of two types of shoreline sections previously considered unsuitable: the sections of the coast

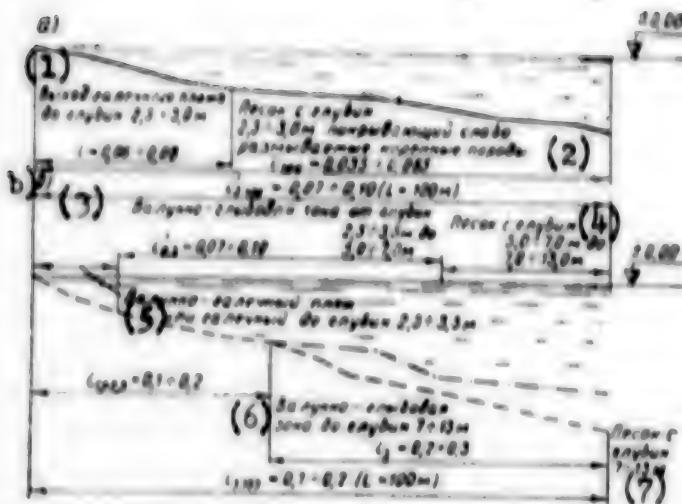


Figure 1

Key:

1. Seepage of pebbly beach to depths of 2.5-3.0 meters
2. Sand from depths of 2.5-3.0 meters covering slightly eroded bedrocks
3. Pebble-block zone from depths of 2.5-3.5 meters to 5.0-7.0 meters
4. Sand with depths of 5.0-7.0 meters to 7.0-13.0 meters
5. Rubble-pebble beach or pebbly up to depths of 2.5-3.5 meters
6. Pebble-block zone up to depths of 7-13 meters
7. Sand with depths of 7-13 meters

susceptible to creep phenomena, and sections of type III, which are relatively stable but with very deep shores (with depths at a distance of 30-40 meters from the waterline of up to 8-10 meters).

It should be noted that in many cases the very deep sections of the coast are dangerous with respect to creep, in connection with which the problem is complicated to a still greater degree.

The first attempts at stabilization of the slope under such conditions by building retaining walls were undertaken in the last century.

According to data of the Yalta creep station for the years preceding the use of methods of comprehensive and active protection of the shoreline (dikes, small dams, retaining walls, wave suppressors), built on the southern shore of the Crimea were about 20 kilometers of retaining walls, out of which only several tens of meters were preserved by the 60's.

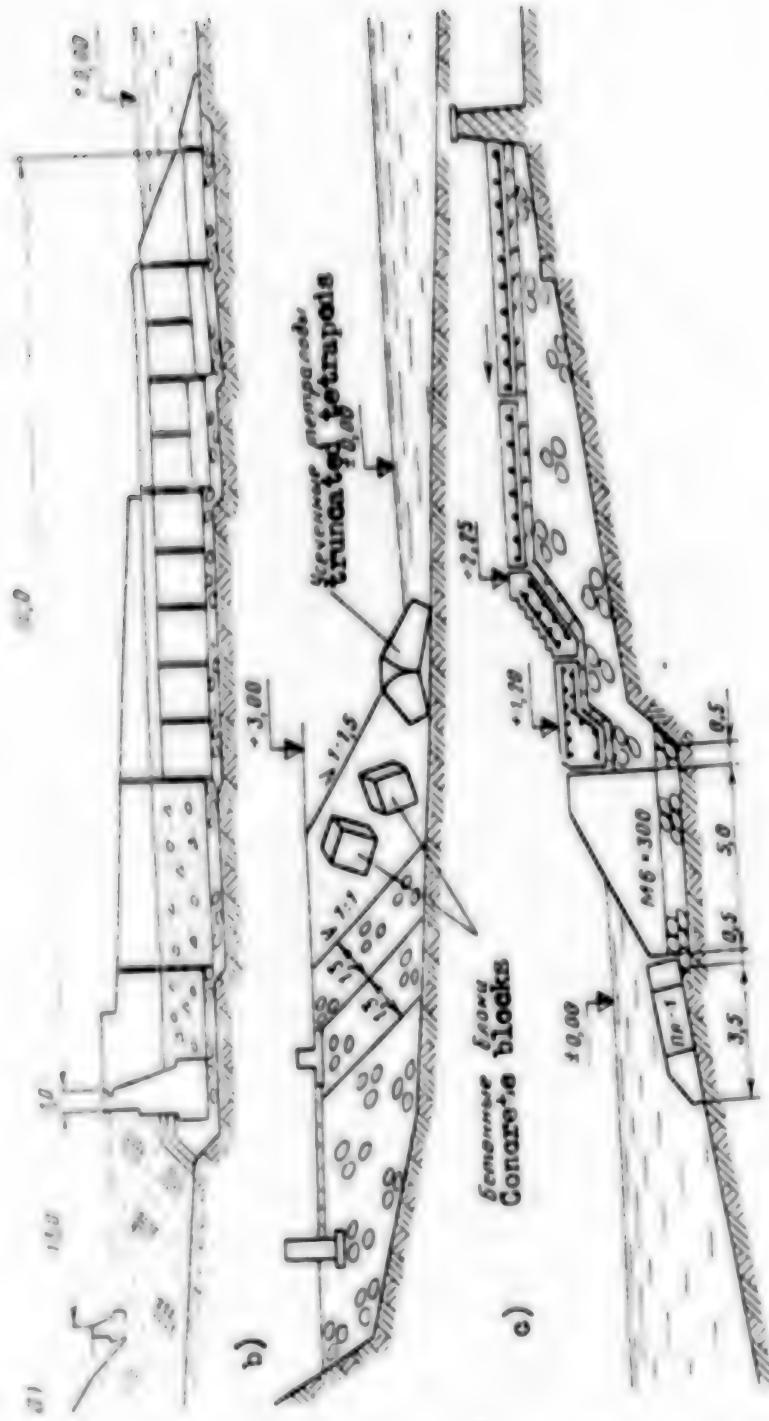


Figure 2 [continued on next page]

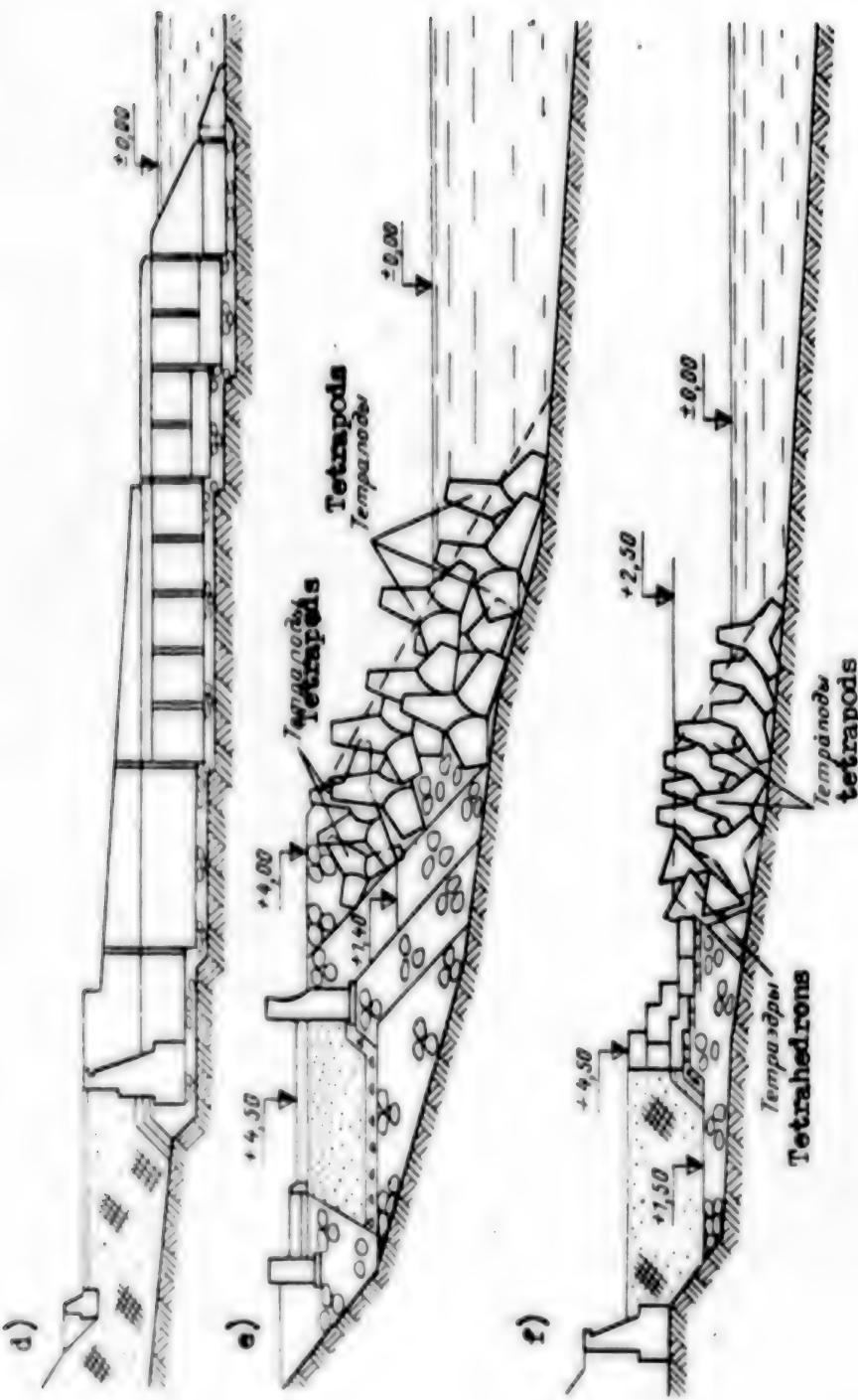


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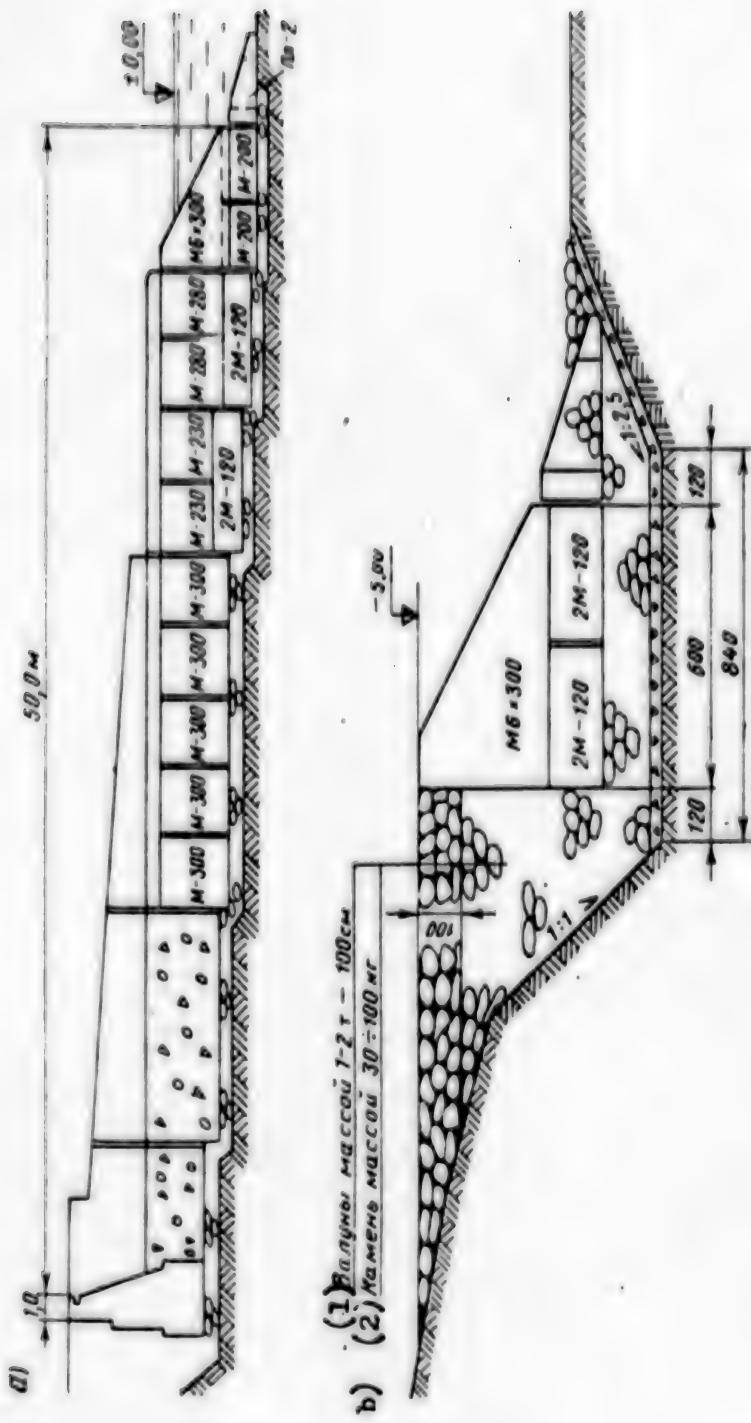


Figure 3.

Key:

1. Pebbles with a weight of 1-2 tons, 100 centimeters
2. Stone weighing 30-100 kilograms

The first structures for protection of the very deep sections were breakwaters with cross-arms. For insuring water exchange between the water area of the breakwater and according to the data of simulation, the deepening of the upper part of the main parts of the breakwaters was designated at from 0.7 to 1.0 meters. Analogous structures were used for sections of the shoreline with lesser inclines. VSN 183-74 recommends henceforth the use of underwater breakwaters with cross-arms on the earth crewp sections and underwater slopes steeper than 0.05.

However the experience of construction and operation of these structures showed their low effectiveness and their uneconomical nature under the conditions of the southern shore of the Crimea for ordinary (not especially deep) conditions and the very low effectiveness for the deeper sections. In connection with this breakwaters were rejected on sections with depths at a distance of 50-80 meters from the waterline of up to 5.5 meters, and the construction of dikes was begun, correspondingly reducing the distance between them to 50 meters. On a number of sections of the coast the breakwaters were dismantled, and dikes were built additionally between the cross-arms, which yielded an obvious positive effect (the Sputnik and Artek projects).

On one of the sections of type II in the region of the Parus Sanatorium with depths of 7.0-7.5 meters at a distance of 30-35 meters from the waterline the top of the breakwater was placed deeper to the 1.7-2.0 meters mark. This decision made it possible to execute the usual complex of structures--cross-arms, and retaining walls, which had proven its viability in the period of the severe storms of 1969-1971. At the same time, design shortcomings were ascertained which did not allow its recommendation for further use, the width of the emergent beach proved to be much less than calculated. There was a considerable rising of the water during the storms in the water area of the breakwater and, as a result, there was an increase in the dynamic loads on the retaining wall and in the eroding velocities in front of it, for damping of which it was necessary to make a rubble dam weighing 3-15 tons.

At the beginning of the 70's, Fundamentproyekt [State Institute for Planning Foundations and Substructures] in cooperation with builders proposed a design of an underwater bank for the section of the shoreline in Miskhor with depths of up to 8-9 meters at a distance of 30-40 meters from the waterline. The Sochi Laboratory imeni A.M. Zhdanov did a study of this design and confirmed its effectiveness. At the present time the design is being used extensively on especially deep sections of the southern coast of the Crimea.

Intensive abrasion of the shore slope on certain sections created complicated conditions for strengthening it: immediately behind the upper brow of the slope very valuable territories of parks and health resorts had been started, different facilities were located there, and in places the slope had a reverse gradient.

Under such conditions the Yalta branch of Ukrayuzhgiprokommunstroy [Ukrainian Southern Institute for Planning Municipal Construction] proposed to shift the axis of the retaining walls to depths of 2.5-3.0 meters, and to make the foundation of the retaining walls out of solid walling. After this there would be a riprap made out of soil in the form of banks with variable marks of from 4.5 to 20 meters, which will make it possible almost completely to reject cutting of the slope.

Under the conditions of active creep, the same institute proposed a design of flexible banks. Serving as a characteristic example of such a solution is the construction of an embankment and drainage facilities for stabilisation of the central Alupka rock slide and emergency structures in the region of the "Zolotoy plyash" slide area.

Used in one case and another were a tetrapod-tetrahedron bank with a rubble and stone shore section, protected by a graduated construction made of blocks with a weight of 4.0 tons. Shifts of individual parts of the structure will not lead to destruction of the structure as a whole, and the completely prefabricated construction makes it possible to do repairs. It is necessary to note that during the time of operation of these structures (since 1974), no repairs have been required.

In the complex of shore retention structures of the southern coast of the Crimea, a special place is occupied by the wave-suppressing wall made of rock and crushed stone materials and different types of banks made of fill of artificial blocks and block rubble (3-5 tons in weight).

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10908
CSO: 5000

KAZAKH SSR LAND CONSERVATION

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 16 Apr 80 p 1

/Editorial: "Save the Land"/

/Text/ Land is an invaluable resource of the people, one of the most important productive forces of the country. Not by chance was the Decree on Land among the first decrees of the Soviet state, which was signed by V. I. Lenin. "Save, preserve the land like the apple of your eye." These words of Lenin serve the Soviet people both as a behest and as a guide to action. And it is natural that the need for the careful, rational use of land and its conservation is set down in the USSR Constitution and the Land Code of the USSR and the Kazakh SSR.

The introduction in Kazakhstan of state monitoring of land use made it possible to regulate this work somewhat. At present the questions of making tracts available for nonagricultural needs have begun to be solved more carefully. The situation with the recultivation of land has also been improved somewhat. The coal miners of Karaganda and the metallurgists of Ust'-Kamenogorsk are displaying a good example in this important matter. The collective of the Mine imeni Lenin of the Karagandaugol' Association, for example, has recultivated hundreds of hectares of land which were removed from use: more than 1.5 million tons of rock were removed, 600,000 tons of humus and chernozem were delivered. The subsidiary farm of the mine with an area, on which the fertility of the soil was restored, obtains good harvests of various agricultural crops.

The collectives of other mines of the association are also taking this route. All the work is performed according to scientific recommendations and developments, purposefully and according to plan. Not long ago the Karaganda State Institute for the Planning of Mines elaborated the technical and economic substantiation of land recultivation up to 2000. This is an example of a truly practical, zealous concern about the land.

A set of anti-erosion measures occupies an important place in the system of measures on land conservation and the increase of its fertility. The sovkhozes and kolkhozes of Kazakhstan are performing some work on the introduction and assimilation of scientifically sound crop rotations. Particular

attention is being devoted to soil protection crop rotations, which are being introduced on light-textured soils. In 1979 4,900 such crop rotations were introduced at 626 farms of the republic. The moldboardless tilling of the soil with the retention of the stubble was performed on an area of 15,634,600 hectares. Here the farms of Tselinogradskaya and Kokchetavskaya oblasts are showing an example. The republic Ministry of Agriculture should display great persistence in disseminating this valuable know-how.

At the same time there are still many shortcomings in the questions of the conservation and rational use of land. The nonfulfillment by a number of enterprises, organizations and planning institutes of the requirements of land legislation on the allotment for nonagricultural needs of completely useless land or land of the worst quality is arousing serious anxiety. Many oblast soviet executive committees are allowing sovkhozes and kolkhozes to build intrafarm projects on valuable land. Last year alone 700 hectares of plowland were used in this way. The Land Management Service of the Kazakh SSR Ministry of Agriculture detected during 1979 more than 600 instances of various violations of land legislation. In recent times tens of thousands of hectares of land have been removed from use.

Cases of the arbitrary seizure of land continue to occur. Last year 401 cases of the illegal occupation of tracts with a total area in excess of 10,000 hectares were detected. Thus, the Main Administration of Recreation Zones of the Alma-Ata City Soviet Executive Committee seized without any permission about 100 hectares of fundamentally improved pastures at the Alma-Ata Kolkhoz of Talgarskiy Rayon, while the oblast office of the All-Union Bank for Financing Capital Investments, in violation of the established regulations, provided financing for construction. But in spite of the fact that the material was turned over to the Prosecutor's Office of the Kazakh SSR, the infraction was not rectified.

Among the self-willed seizers of fertile tracts are the Volodarskiy DEU-554, the Ruzayevskiy DSU-8 and the Leninskiy DESU-285. The enterprises of the Soyuzselinvod Trust frequently destroy the fertile layer of soil when laying water mains.

Investigating organs and the prosecutor's office often take a lenient, unscrupulous position with respect to violators. Last year, for example, 78 statements on the arbitrary seizure of land and on the institution of proceedings against the guilty parties were sent to investigating organs. But only 11 statements were reviewed and in only one case were criminal proceedings instituted against the guilty parties. Such leniency cannot but cause alarm, for the most valuable public property is being squandered! Who, if not the local authorities and the prosecutor's office, should be the vigilant guards of this wealth? Forgiveness and "humaneness," which is in no way justified, in this case bring nothing but harm to society, because precisely impunity leads to newer and newer violations. Not by chance has the proper monitoring of the observance of the Law on Land not been set up in many oblasts, while the responsibility of the monitoring organs has been decreased. Unfortunately, such cases are also not always evaluated on the basis of principle in the local party organs.

The party organs are called upon to persistently implement party policy on questions of agriculture, to take effective steps on the scientifically sound, rational use of land, its conservation and the utmost increase of the fertility of the soil and to educate collectives in the spirit of a considerate, practical attitude toward the land.

The immediate duty of the local soviets of people's deputies, the prosecutor's office, the People's Control, land management services, nature conservation societies and the public at large is to guard watchfully the spirit and letter of the Law on Land, to constantly see to it that all its clauses are strictly enforced, to put a stop to departures from them and to take steps on putting unused land into use. The local soviets of people's deputies are also obligated to support in every possible way and to disseminate extensively the advanced know-how of the restoration and increase of fertility, the technical and biological recultivation of land and to strictly call to account those who are guilty of squandering valuable arable plots.

Science is called upon to make a large contribution to the solution of the national problem of the conservation and rational use of land. The Kazakh SSR Academy of Sciences and sectorial institutes need to carry out active scientific research work on the typification and the finding of effective means of the economic development and recultivation of disturbed land.

"The protection of soils is a matter of our entire society," Comrade L. I. Brezhnev emphasized at the Third All-Union Congress of Kolkhoz Farmers. "Any harm to the land should be regarded as an antisocial act. Whoever encroaches upon the land, treats it carelessly and does not increase its fertility, is undermining the underlying physical basis of the well-being of the people." We will remember this everywhere and always, we will save our beautiful land--the priceless treasure of the people!

The May Day Appeals of the CPSU Central Committee are directed to all the citizens of the Soviet Union:

Save and multiply the socialist property!

Use the resources of the country rationally and practically, protect your native nature!

7807
CSO: 5000

'IZVESTIYA' REPORTS EMERGENCY WORK TO REPAIR STORM-DAMAGED DAM

LD301511 Moscow IZVESTIYA in Russian 29 May 80 Morning Edition p 6

[Unattributed report under the rubric "Courage"; "Defying the Elements"]

[Text] Baku--The courage and skill of people who entered boldly into the battle against the elements made the trouble retreat. The Baku highway came to life again--during the powerful hurricane, a mighty flow of water had poured along it from the burst dam at Beyuk-Shor Lake. The pumps, which had pumped water away ceaseless, fell silent. The lake, which borders on Baku in the north, glistens in the sun. And you would hardly believe that a few days ago it was like a gigantic bubbling cauldron.

The dam could not withstand the pressure of the waves, and water poured through the breach which formed. It flooded the road to the airport and began to approach the workers' settlement of Sabunchi.

In order to repair the dam as quickly as possible, the city's emergency services headquarters decided to drive a road through to the damaged dam via a cliff on the right bank of the lake. Bulldozer operator R. Sattayev and his comrades had never had to work in such difficult conditions before. The machines were moving down steep slopes, but nobody thought about the danger. When the way down to the dam was prepared, the first dump trucks made their way through the gap with boulders and sand.

Dozens of machine operators and drivers worked for 2 days and nights without sleep. The ground was repeatedly washed away from under the machines of N. Nuriyev, A. Popkov and Yu. Deykin. But work did not stop for a moment.

CSO: 5000

BRIEF

KIRGIZ EARTHQUAKE--Frunze, 30 April (TASS)--Today at 0014 Moscow Time there was an earthquake in Kirgizia. The force at the epicenter reached 4-5 points. According to the data of the Kirgiz SSR Academy of Sciences, its center was located on the northern slope of the Zaaliyskiy Range, 130 km southeast of the oblast center of Osh. The earthquake was felt in the cities of Osh and Kyzyl-Kiya with a force of 3 points. No damage from the earthquake was noticed. /Text/ /Moscow IZVESTIYA in Russian 1 May 80 p 6/
7807

CSO: 5000

INTERNATIONAL AFFAIRS

DANISH ENVIRONMENT MINISTER LAUDS BALTIC SEA CONVENTION

Copenhagen BERLINGSKE TIDENDE in Danish 23 May 80 p 12

[Article by Environmental Affairs Minister Erik Holst]

[Text] Once in a while one runs into the feeling that Denmark spends too much time participating in international cooperation efforts. Nothing gets done, they say. The results are infinitesimal. Instead of listening to each other people use the opportunity to propagandize for their own views.

I won't deny that at times things go somewhat slowly. On the other hand this is not so surprising. Often bridges must be built between widely differing social systems with divergent political orientations and often large economic interests and prestige considerations are involved. But in many areas international cooperation is the only course possible. There is no choice. That is true of several of the areas for which I am responsible as minister of the environment. One can be as skeptical as one would like. But if we really want to do something about ocean pollution, for example, it can only be done as part of an international cooperation. And in reality there is no reason to be so skeptical. In recent years many encouraging advances have been made in the environmental area.

I have just taken part in the first meeting on the convention to protect the marine environment in the Baltic Sea area which has now gone into effect. I feel that the Baltic Sea (or Helsinki) convention will prove to be a decisive tool in the fight against the serious threats to life in the Baltic Sea.

For natural reasons the Baltic Sea is one of the most vulnerable ocean areas. One of the reasons for this is that the water in the Baltic is renewed only every 20-30 years so that polluting substances remain in the Baltic for quite long periods of time. The water in the Baltic is brackish, in other words the salt content is considerably lower there than it is in other seas. In brackish regions there is much less life than is

found in saltier seas and, even worse, these organisms live under what biologists call "ecological stress," meaning that a relatively small deterioration of conditions can lead to the disappearance of these organisms.

But in addition to the natural factors we humans have done our bit to produce "stress" in the Baltic. The Baltic Sea is surrounded by highly-developed industrialized nations. This means that sizable quantities of sewage are discharged from the big cities every day along with the waste water from industry. In addition many ships sail the Baltic every day, among them large oil tankers.

It was against this background that the Baltic countries, Denmark, Finland, Poland, the Soviet Union, Sweden, West Germany and East Germany, agreed in 1974 on the convention to protect the marine environment in the Baltic Sea region. Geographically the convention covers not only the Baltic Sea itself but also Oresund, the Great Belt, the Small Belt and Kattegat as far as a line running through Skagen.

When I regard the Baltic Sea convention as a definite step forward it is partly because it includes guidelines on every type of ocean pollution (from land, from ships and from the air) and partly because these guidelines are very strict. For example dumping is prohibited as is the discharge of oil from tankers. Special receptacle facilities must be provided in all ports to assist tankers in getting rid of their oil residues in other ways.

Another reason for my optimism is that even during the preliminary work, before the convention went into effect, a great many substantial new results were achieved. For example the Baltic countries in the United Nations International Marine Consultative Organization, IMCO, set up a special route through Danish waters for big oil tankers and recommended that big ships use pilots familiar with the region on this route and while passing through Oresund. Through this kind of international cooperation we can arrive at an improvement in the piloting system, thus increasing security in Danish waters.

On 21 March Folketing unanimously approved the bill on protection of the marine environment. The bill regulates all forms of pollution. It is an encouraging sign that everyone in Denmark understands that something must be done about ocean pollution. But it is no exaggeration to say that the Danish marine environment legislation will be totally ineffective unless it is one link in a concerted international action. That is the wider perspective provided by the Baltic Sea convention which went into effect on 3 May.

6578
CSO: 5000

GREENLAND PAPER: CANADIAN SUPERTANKERS POSE THREAT

Godthab GRONLANDSPOSTEN in Danish 7 May 80 pp 17-18

[Excerpts] Both trapping and trawler fishing will be threatened if Canada sends supertankers through Arctic waters, according to the local newspaper HAINANG in Qaanaaq in a comprehensive special issue. GRONLANDSPOSTEN presents here HAINANG's review of the project and its consequences.

It first became public knowledge in Greenland in August 1979 that a large-scale Canadian project called the Arctic Pilot Project was being prepared. When the Greenland Ministry became aware that this would affect Greenland interests to a high degree a biologist, Jens Christiansen from the Danish biological company Marin ID [expansion unknown] was sent--without an interpreter--to Upernivik and Thule communities to orient the people in the two communities on the project against the background of very skimpy information from the Canadians.

The first information on the project came from a colorful brochure prepared by the partially state-owned company, Petro-Canada, explaining in English and in Inuktitut [Eskimo] the "fantastic" future prospects and all the benefits that would result for the Eskimo people if the project went through.

Interest has been concentrated on the Arctic regions and one of the first results was exploitation of the large oil reserves in Alaska.

Greenland has also been included in this interest--remember the test drilling off the west coast in the summer of 1978. Later all concessions were given up and no further drilling tests were made in Greenland waters.

But in Canada the situation is entirely different since they have discovered the presence of both gas and oil in large amounts in the Northwest Territory (N.W.T.). The only problem is to get the products to the places where they are to be used.

This has prompted Petro-Canada to draft a project to extract and ship out the natural gas deposits on Melville Island. This project goes under the name of Arctic Pilot Project (shortened here to APP) and looks like this:

1. The gas will be extracted from below the surface.
2. The gas will then go to a condensation plant and shipping port.
3. Liquefied natural gas (LNG) will be transported by icebreaking tankers from Melville Island to destination ports in southern Canada.
4. LNG will be processed for use in the existing gas distribution network in southern Canada.

The gas sources lie on the northern part of Melville Island and in order to transport the gas elsewhere a pipeline about 160 km long is being built south to Bridport Inlet. Here the gas will be cooled down to -162° C., at which temperature it liquefies, causing it to occupy only 1/600 of its original volume. In its liquid form the gas is called Liquefied Natural Gas (LNG).

In its cold liquid state the gas is easy to transport in specially-constructed tankers and that is what they are planning to do.

Gas tankers are already known in Greenland since much of the country's bottle gas supplies arrive by gas tanker at the Kosangas plant in Godthab.

But the gas tankers Petro-Canada is planning to use to bring LNG down to southern Canada for use there are of an entirely different size.

The disturbing part of the project is that the tankers are enormous and like icebreakers they will be sailing year round. Another disturbing factor is that the tanker routes will go to the east, very close to the west coast of East Greenland and thus it is the people and the wildlife of Greenland that would be threatened by a project that seems very risky.

Greenland Not Mentioned

The first publicly available information on APP came from the colorful brochure mentioned earlier which Petro-Canada distributed in February 1979. There is only a single copy to be found here in Thule.

The brochure explains how LNG is produced and talks about the building of factories and tank facilities on Melville Island and the details of the two gas supertankers that will begin transporting the gas.

In an important section a deliberate effort is made to downplay the effect of the project on nature and wildlife both on land and at sea. There are many pretty color pictures of animals and birds to distract the reader's attention from what the text says--or more correctly fails to say.

In addition "pie in the sky" is promised to the workers recruited from the local population. Never have we seen the like in the way of flexible working arrangements, since workers can report for work or go hunting practically at will.

Petro-Canada is not unmindful of the fact that local communities would protest against having a floating bomb in the form of a gas tanker come too close to a village and an attempt has been made to forestall any protests by saying that they will probably pass as far as 150 km from Arctic Bay, 272 km from Grise Fiord, 576 km from Frobisher Bay, etc. But they don't mention that at times they will be sailing as close as 25 km to the west coast of Greenland!

The APP brochure says that each of the tankers will make around 15 round trips a year which means that the two ships will be passing the west coast of Greenland going either north or south around 60 times a year.

Heavy Traffic

It should be expected that the traffic will intensify and over a period of years it could assume colossal proportions. An estimate made by the Canadian environmental committee, Canadian Arctic Resources Committee (CARC) gives a serious and entirely different picture of the development that would occur if icebreakers succeed in keeping a shipping passage open.

On the basis of information in the report a very alarming calculation can be made of the anticipated development in sailing if the gas and oil fields are utilized (see box [not included]).

In addition to this they anticipate passage of ships in the 2800 tdw (tons deadweight) class (class 2) from various mineral mining fields. It is estimated that passage of this kind of ships could reach about 60 trips a year but it is not clear from our sources whether all these ships will also be equipped as icebreakers or will sail with icebreaker assistance.

If we base our estimates on these figures we find that on an annual basis four ships a day--one ship every 6 hours--would pass a given point (for example Upernivik).

If we assume that supertankers of the size mentioned travel at a speed of 10 knots they will take just under 4 days to sail up or down the west coast. This means that there would be 15 or 16 supertankers off the west coast of Greenland at all times!

These are long-range projections and the spontaneous reaction is concentrated on the preliminary plans for two supertankers which--if the Canadian government gives the green light to APP--will be breaking ice off the west coast of Greenland as early as 1983. Their passage will certainly affect nature and wildlife and there will be consequences we can't even imagine today. What we have heard from various sources amounts to speculation for which there is no proof and for that very reason it would be much wiser not to bring nature out of balance.

Pollution Danger

One of the biggest dangers is pollution in the event of a shipwreck. In itself the gas is not a pollution threat since a leak would simply vaporize and disappear without a trace into thin air. If the worst should happen and a ship exploded there would "just" be a loud bang and that would be the end of that ship! But the oil on the ship for use as fuel would be an enormous pollution danger we should not ignore.

Nor should we ignore the noise pollution, especially the noise traveling through the water. Noise travels about three times as fast through water as it does through air and it goes much farther, possibly causing fish and sea animals to react to the noise irritation by moving to other regions which would do irreparable harm to the fishing and trapping industry.

A shipwreck would be a catastrophe for ship and crew but the passage itself would be a catastrophe for the people of Greenland as a whole. Just the nuisance caused by passing the fishing banks would make it impossible to fish with ships of the size at the disposal of fishermen on Greenland. The waves as high as houses caused by supertankers would make any form of trawl fishing impossible.

Greenland cannot tolerate having its two most important productive industries threatened with extinction because of the inconsiderate shipping traffic of foreign, well-to-do nations aimed at satisfying the over-consumption of energy in unrestrained luxury.

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FORESTRY, PEAT-CUTTING DESTROY SWAMPS

Helsinki SUOMEN KUVALEHTI in Finnish 2 May 80 pp 84-86

[Article: "The Swamp Is Waiting"]

[Text] Over half our country's swampland has been drained to fill the needs of forest development and farming. The draining of the swamps continues at the rate of 100,000 hectares a year. The peat industry has set aside 300,000 hectares of swampland for its use. Conservationists hope to get a half a million hectares of swampland under the control of their conservation program for the entire country's swampland. Then 5 percent of the original swampland would come under the conservation area.

The swamps have been a particularly dominant factor in the Finnish countryside. Nearly half of the Pohjanmaa and Lapland areas were originally covered with swamps. The most swamp-filled area is the Suomenselka region in Keski-Pohjanmaa where two-thirds of the land area is covered with swamps. There are few swamps in Etela- and Keski-Suomi and in those areas they were also drained at a very early time to be used as farmland or forest.

During the past few decades, the swamps have been drained at a drastic rate. For example, fully 90 percent of Keski-Suomi's 404,000 hectares of swamps have been drained! Conservationists have demanded that we preserve representative areas of our common swamp resources. Swamp conservation programs have been drawn up. When the government finally really and truly got interested in swamp conservation, the final hour was at hand.

During its 1977 deliberations, the Agriculture and Forestry Ministry's swamp conservation study group proposed that 290,000 hectares of Etela- and Keski-Suomi peat bogs and open, rush marshland be preserved. During the final deliberations, the program was cut back and the Council of State approved it as a 210,000-hectare project. Almost half of this is already state-owned land. It will probably cost about 70 million marks to buy the privately-owned portion.

The program for the development of a national park network which the Council of State approved in 1978 also includes swampland, altogether 31,000 hectares, and they will become conservation areas in connection with the establishment of the parks.

At the present time, about 65,000 hectares of swampland are protected in our country through the nature conservation law or other decisions. This is only 0.6 percent of our country's original swampland. Approved swamp conservation programs along with protected swamps account for 300,000 hectares. This is already 3 percent of the country's swampland.

The Agriculture and Forestry Ministry has just set up Basic Swamp Conservation Program II for Pohjola and Lapland. This includes rush-covered marshland and the peat-knoll bog region in Lapland. During the deliberations, it was proposed that 82 Pohjola-Suomi swamps, with a surface area of about 300,000 hectares, be protected. Only a good 10 percent of this is already in protected areas. Most of the swamps covered by the program are state-controlled anyway, which means that preserving them should in principle be an easy matter. The cost of the program's 60,000 hectares of privately-owned swamps is estimated at about 50 million marks. It is to be feared that the program proposal will not be approved as such; rather, part of it will be trimmed. It will be a good thing if in the end a half a million hectares of swampland is obtained through the swamp conservation basic program for the whole country, whereby 5 percent of our original swampland would become protected areas.

The swamp conservation programs that have been approved will in themselves not save Finland's swamps. That will only happen when the programs are carried out. Implementation of nature conservation programs has so far been poor.

The Forestry Ministry handles the purchasing of swamp areas jointly with the district organizations. Purchases are being transacted at a rather slow pace. So far, 7,700 hectares of the over 100,000 hectares of privately-owned swamps provided for in the basic swamp conservation program have been purchased. At this rate, it will take from 20 to 30 years to complete the program!

Aside from the swamps to be protected, national park areas and regional design federation intermediate-design conservation areas are also waiting. If it takes a generation to complete the areas, we will certainly not be able to maintain all the planned areas in their natural state while waiting for an official decision. Besides, this is unreasonable from the standpoint of the owners of these areas. The Agriculture and Forestry Ministry has given its attention to the problem and also proposed an increase in appropriations for the provincial governments.

Battles Over Haapasuo

Two examples of implementation of swamp conservation programs have now come up in Kainuu-Suomi. In one of them, they have been forced to do everything they can on behalf of conservation because of opposition to it. In the other one, on the other hand, the conservation program has been carried out quietly with the landowners themselves taking an active role on behalf of swamp conservation.

Haapasuo, in the town of Leivonmaki, has long been included in different conservation programs. The town of Leivonmaki would have done its best to exploit Haapasuo for peat-cutting. A part of the swamp is already a peat-production area. But conservation officials have done everything they can to protect the most valuable part of the swamp. The ban on taking steps at Haapasuo ordered by the provincial government last fall was a hard pill for the Agriculture and Forestry Ministry to swallow. When it seemed as though the town, which owns part of Haapasuo, could not be gotten to give it up for conservation purposes by voluntary means, the only way open to the ministry was to expropriate Haapasuo. The Council of State made history! On 6 March the Council of State decided that Haapasuo would be expropriated by the government for conservation purposes, the first expropriated conservation area!

Now the Haapasuo conservation decision has confirmed the Agriculture and Forestry Ministry's conservation authority image.

Peaceful Swamp Conservation

In its own way, the placing of Kilpisjärvi at Karstula under the protection of the law through the Keski-Suomi Provincial Government's decision of 12 February also made history. That decision created Keski-Suomi Province's biggest conservation area, laid out on private land through cooperation between landowners and the conservation authorities. The event is also an example of how a provincial government, functioning as the provincial authority, was, through its relatively close contact with landowners, able to take care of the conservation issue through negotiations. In future, provincial governments will, through more effective negotiation, implement other conservation area programs too.

The owners of Kilpisjärvi wanted to preserve the swamp in its natural state. The owners of the land have now been recompensed for protecting the swamp. The amount of the compensation is generally about half of the market value. Many owners of swampland, nevertheless, are satisfied with this since the land and the right to use it continue to remain under their control. Since the conservation agreement is made in accordance with tax authority regulations, they receive a tax-exempt compensation. Nor do they have to pay taxes on the land itself.

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FINLAND

NOISE, WASTE WATER CAUSE DROP IN SAIMAA SEAL NUMBERS

Helsinki HELSINKIN SANOMAT in Finnish 8 May 80 p 11

[Text] Lappeenranta (HS)—Saimaa seal counts taken from the air will end this spring. The weather has favored the counting, there have been enough clear days. This is why it is believed that this time the count corresponds quite closely to the actual situation. It does not look good. Less than 100 seals were spotted on the darkening spring ice.

The Saimaa seal, which is a marble seal subspecies, is suffering most in Etela-Saimaa. Only about 20 of them are alive in the Kymi Province area.

When we move into the quieter and cleaner waters of the North, the situation improves a bit. Air counts taken so far around Mikkeli and Joensuu have turned up about 70 Saimaa seals.

The most discouraging thing about the counts was the fact that young seals were not found. There were none at all in the Etela-Saimaa area, nor pups either.

This spring a seal study group was formed to collect information on Saimaa seal living conditions and to count the number of seals. The group is now finishing up with the air count part of its job. Soon the researchers will be in a position to add up their findings and make plans for improving living conditions for the seals.

Aside from the seal study group, Prof Heikki Hyvarinen, Dr Ilkka Koivisto and environmental protection inspector Ilkka Sten are also studying seals with the help of the Finnish Culture Fund. In addition, they get background support from the World Nature Foundation.

Ilkka Sten says that funds for research on seals are now for once plentiful. Saimaa region residents have become enthusiastic seal watchers and many tips from the populace have been investigated.

The defense installation has also helped field workers. They have been allowed to fly its helicopters and have even been accompanied by Army observers in their search for seals.

Noise and Waste Water Reduce Population

Even before the researchers' final report has come in, Prof Heikki Hyvarinen has confirmed the sad news that seal numbers have declined.

They are trying to find out why. They already know that seals do not like noise, but motorboats and motorboats can quickly reach the areas where the seals are.

Waste water may be another reason for the decline of the population. Tests made on seals show very high mercury counts. At least in Etela-Saimaa, waste water is driving the seals away.

Man with his gun is no longer an enemy of the seals in the same way as he was before. Many fishermen let a seal snap up fish from their snares, even though the net is lost along with them.

They realize that one of the world's rarest animals, a relic from the ice age 8,000 years ago, is stealing their fish.

The seal count from the air is not just an aimless floundering about in the endless masses of the Saimaa. Before a flight is made, the sea chart is minutely examined.

The counters, fishing industry adviser Martti Uusimaki and farmer-fisherman Kaiku Marttinen, and pilots Markku Ratilainen and Ilkka Heikkonen were chatting alongside the chart.

Uusimaki's sea chart is full of spots circled in red pencil at different times in the Greater Saimaa area indicating places where seals have been spotted. From year to year, the circles have diminished and, since last year, there have been only six red circles left.

For this flight, they decided to check the spots they found last year and, of course, they hoped to make new observations.

The four-seater, high-wing monoplane took off from the city headed for the Saimaa. We flew from lather-filled industrial waters over dark ice. The ski trails left by Sunday skers and the blurred fishbait holes became scarcer.

We flew quite low, any lower and we could not have landed. The seal counters relied on their eyes and the sea chart. On earlier flights they had found binoculars to be too clumsy.

Is that a rock or a seal? A rock, the counters repeated over and over, with their eyes glued to the ice. Most often, what you take to be a seal turns out to be a fishbait hole, a crack in the ice or a rock on the point of a cape.

They turned the seal chart to the right section. Those who were in the front seats pointed forward and off to one side. There it was: On the edge of a clearly outlined, steep-sided hole in the ice, a well-formed, Saimaa seal with a dark-colored back was lolling about.

The movement of its head was visible to the people circling above it.

The counters were thrilled by the huge, innocuous creature. The scientific purpose of the flight yielded for a moment. The seal that had been sighted made them relax and tell stories.

Kaiku Marttinen said that seals have good hearing and like to listen to portable radios in their cabins. But they are, we hear, curious. When my daughter was splashing about on the shore, a seal came from a little way off to watch her.

At the next spot marked on the chart, there was supposed to be a really big seal and there it was, bigger and grayer than the first one. It cared little about the circling plane, just went on with its solitary puttering about the edge of the hole.

Shortage of Partners for Saimaa Seals

We continued flying northwest. There was only a small sector of Kymij Province left to cover when suddenly we made a new sighting which was not on our chart anywhere. It was a rather young seal which clearly was not used to all sorts of counters. Feeling offended, it slipped into the hole, but the chart acquired a new circle.

The day before, another seal had been sighted a couple of kilometers away, but the counters figured that it could not have been the same one. They decided that it could not have moved so far in 1 day.

On the return leg, we were certain of it. We had seen solitary seals here and there but never together, much less so pups.

The problem is that Saimaa seals no longer want to find suitable mates to increase their numbers. The last time pups were seen around here was some 10 years ago.

Regulation Destroys Breeding Places

Planned regulation of the Saimaa has kept the seal researchers busy. Uusimaki and Marttinen fear that the seals' winter breeding places will be destroyed if water is released into the lake contrary to the laws of nature. Then any pups would be trapped.

During the winter of 1975, when there was an exceptionally high volume of runoff in the Saimaa, two young seals were found whose bones were broken. Presumably they were trapped in their winter quarters when the water flowed into it.

"We should make every effort to try to protect this rare animal," the counters reiterated. "You have to have grown up pretty twisted to be able to shoot a creature like this."

Three deliberately killed Saimaa seals have been sent to Joensuu College during the past 3 years. This despite the fact that the animal has been protected by law since 1955.

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CLEANUP TO START ON RIVERS, LAKES FEEDING HELSINKI WATER SUPPLY

Helsinki HELSINGIN SANOMAT in Finnish 22 Apr 80 p 12

[Article: "Keski-Uusimaa Waters to Be Cleaned Up and Used for Recreation: First to Be Put Into Shape Will Be Keravanjoki and Tuusulanjarvi"]

[Text] Hyvinkaa (HS)—Work has begun on cleaning up Keski-Uusimaa's dirty lakes and rivers for use as recreation areas. The Municipal League for the Protection of Keski-Uusimaa Waterways is about to implement a plan that has been contemplated for several years now.

The plan is, first of all, to put Keravanjoki and Tuusulanjarvi back into shape. Later, the operation could be extended to Vantaanjoki, Rauutjarvi and Ridasjarvi, if Hyvinkaa, Nurmijarvi and Riihimaki go along with the plan.

Jarvenpaa, Kerava, Tuusula and Vantaa belong to the municipal league, which has begun to implement the restoration operations. Under discussion is the so-called sea drain the municipal league had built.

It was precisely the completion of the sea drain that has provided the impetus to restoration of Keski-Uusimaa's minor waterways. Jarvenpaa's waste water no longer runs into Tuusulanjarvi. The lake, which was on occasion choked with pollutants, has begun to re over faster than was expected.

Speeded Up by Paijanne Tunnel

Elsewhere, cleanup plans have been speeded up by completion of the Paijanne Tunnel. The tunnel is capable of bringing considerably more water than is needed into the capital district. Two years ago the Capital District Water Company (Paakanpunkiseudun Vesi Oy), which had the tunnel built, proposed that surplus water be pumped into Keski-Uusimaa waters, which would thus be cleansed.

According to Municipal League for the Protection of Keski-Uusimaa Waterways general manager Ilkka Hirvisto, the waterways will be restored in a couple of years time. After that, the member municipalities can discuss the plans.

According to Hirsto, the use of water from the Paijanne Tunnel to cleanse lakes and rivers is only one device and they are not at all certain that it will be used.

According to calculations made 2 years ago, the necessary pumping stations would cost 2.7 million marks. Annual pumping costs would come to almost 1.4 million marks. This does not include capital cost. Ilkka Hirsto estimates that the Capital District Water Company could very well also demand that its capital cost be included in the price of water, in which event the price would rise considerably.

According to general manager Hirsto, the power plants on the Kymijoki could also constitute an obstacle to the use of water from the Paijanne Tunnel. Taking water from the Paijanne waterway means taking it away from the Kymijoki power plants and they might have to pay them compensation for same. So, the water would be so expensive that it would not pay to use it to flush the lakes of Keski-Uusimaa.

Among other projects proposed in connection with the cleansing of Tuusulanjarvi is the removal of existing harmful silt deposits from the lake bottom, whereby the lake's oxygen content would be increased. One way of ridding the lake of polluted water that has been briefly considered is the possibility of leading it off through pipes laid along the lake bottom. They also plan to improve drainage of the lake's overflow area.

There is an old plan for cleaning the waters of the Keravanjoki district which was primarily devised to prevent flooding of the lower reaches of the river. Among other projects, the plan includes the construction of artificial lakes and dams.



The cleanup of Keski-Uusimaa waters will begin with the Keravanjoki and Tuusulanjoki. The builder of the Paijanne Tunnel has proposed that the rivers and lakes be flushed with water from the Paijanne waterway. High costs may rule out the proposal.

Key:

1. Proposed water-tapping points from the Paijanne Tunnel.
2. Artificial lake of Silvola.

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SWEDEN

BRIEFS

'ENERGY FORESTS' MAY DAMAGE ECOLOGY--Stockholm, 16 May--Will cultivated energy forests be pasture land for moose and field mice? Will energy forests encourage insects? For environmental reasons can we accept that large areas will be protected by chemical means? Will new types of trees be attacked by new plant diseases? Much money is being invested in technical research on cultivation of energy. Significantly less interest has been devoted to the environmental consequences and the biological risks which are associated with these alternative energy sources. They also demand large research inputs. This was established by Dr Bengt Lundholm and Dr Soren Svensson in a report issued by the Coordinating Board of the Swedish Research Councils. They state that no more than 13 million kronor are needed over a 5 year period to determine the research needs in this area. The larger problem is to find the needed scientists. But the biological research is necessary if energy cultivation is to make a realistic contribution in support of our energy needs. [Text] [Stockholm DAGENS NYHETER in Swedish 16 May 80 p 16] 9287

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